



OBSERVER

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Earth Shaking Science In San Francisco

APS annual meeting brings the best of behavioral science to the City by the Bay

APS promised some "earth shaking" science and APS delivered—in more ways than one.

Whether it was the riveting addresses and symposia, a chance to hear National Medal of Science winner Roger Shepard, the informative poster sessions, or even the Sunday afternoon earthquake (3.5 on the Richter Scale, according to local news reports), APS members were treated to some truly "earth shaking" science at APS's Eighth Annual meeting, held in San Francisco, June 29-July 2.

More than 2,100 people took part in the event that was kicked off by the Third Annual Teaching Institute June 29 and capped by the APS Business Meeting July 2. The program agenda that filled the days



Convention photos by David Harbock

This year's Presidential Symposium on brain and neural mechanisms of memory draws record crowd.

SEE CONVENTION ON PAGE 16

Behavioral Research Is Central to Child Health

National Institute of Child Health and Human Development relies on psychologist investigators

For the past three decades, the National Institute of Child Health and Human Development (NICHD) has sought to "assure that every individual is born healthy, is born wanted, and has the opportunity to fulfill his or her potential for a healthy and productive life unhampered by disease or disability." Indeed, since NICHD's inception in 1962, this mission has served as the focal point for the Institute's intramural and extramural research, both basic and clinical. From research on human development, to research on reproductive health, to research on disease treatment and prevention, each of these programs is ultimately directed toward helping people lead healthier lives.

The Institute's definition of health is broad and includes the ideas that behavior plays a critical role in many disorders and conditions and that psychosocial develop-

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Behavioral Research at NICHD

Duane Alexander
Director

National Institute of Child Health and Human Development
Guest Contributor



Historically, the National Institute of Child Health and Human Development (NICHD) has always supported research on behavior and psychological growth as fundamental to understanding both normal development, as well as a myriad of diseases. But while behavioral research was seen as important even at the time of NICHD's establishment in 1962, the ensuing three decades have seen an increasingly critical emphasis on understanding the effects of behavior on health and development. From unintended pregnancy and infertility, to sudden infant death syndrome (SIDS), the list of conditions that may, in some cases, be affected by individual psychology and behavioral choices is growing exponentially. We all know, too, that the way in which people seek and/or adopt interventions largely determines the outcome of a disorder.

For example, we now know that the prevention of unintended pregnancy is an area in which behavioral research is absolutely critical. Currently, unintended pregnancies account for approximately 60 percent of all pregnancies in the United States. Although not all unintended pregnancies are unwanted, they still may hold certain implications, which may be dire, for the child. For example, women who have conceived unintentionally are more likely to expose the fetus to alcohol, tobacco, or other harmful substances, as well as less likely to obtain early prenatal care.

Unfortunately, despite the development of better contraceptives, the rate of unintended pregnancies has not changed. This is due, in part, to behavioral patterns, which NICHD-supported investigators are examining, and limitations on the availability of contraceptives. Clearly, however, much remains to be done; first, by clarifying the psychological processes and behavioral choices that result in unintended pregnancy, and then by developing educational interventions to encourage behavior that minimizes the risk of unintended pregnancy.

At the same time, we also know that approximately 10 percent of U.S. couples suffers the pain and frustration of infertility. In their efforts to become parents, many of these couples undergo a growing array of medical interventions; unfortunately, only an estimated 50 percent of those who seek medical treatment will be successful in overcoming their infertility.

Increasingly, psychologists who work with infertile couples are seeing the profound emotional effects of being unable to start a family and being labeled infertile. How the stress and complex emotional issues associated with infertility can actually affect treatment outcome is just beginning to be addressed as we realize that the "psychobiology of infertility" deserves at least as much emphasis as the biology of infertility. Indeed, NICHD recently co-sponsored a workshop by the same name with the NIH's Office of Behavioral and Social Sciences Research.

Once a child is born, behavioral change on the part of parents or caregivers can help protect the child from one of the primary causes of infant mortality: SIDS. Investigators in this country and abroad have conducted a number of studies linking

SEE ALEXANDER ON PAGE 41

CORRECTION

In the May/June 1996 *Observer* article "Psychology in the Institute of Medicine," APS Charter Fellow Carl Eisdorfer should have been included in the list of psychologists elected to the Institute. This omission was not altogether unanticipated since psychologists are not identified in a section of their own in the IOM. Most of them are part of the Social Science Section, which also includes sociology, anthropology, law, and certain other non-medical disciplines.

NICHD FROM PAGE 1

ment is fundamental to overall health. In fact, in fiscal year 1995 (FY95), NICHD spent \$109 million—20 percent of its total budget—supporting more than 200 psychologist principal investigators on various behavioral research projects. (See the list that accompanies this article.)

High priority areas of behavioral research include brain/behavior relationships, the effect of nutritional factors on physical, cognitive, and behavioral development; new behavioral and nutritional therapies for developmental abnormalities; the interactions between biological and behavioral processes; risk-taking behavior and compliance; factors that influence normal and aberrant learning; destructive behavior; unintentional injuries; the relationship between minority status and social, emotional, and cognitive development in children and families; the behavioral factors associated with pregnancy and family formation; gender roles and relationships, including male involvement in parenting; the determinants and consequences of non-marital childbearing; behavioral aspects related to the transmission of HIV and other sexually transmitted diseases; and behavioral adaptation, particularly in association with physical disabilities. The applied research in many of these multi-disciplinary areas was made possible by NICHD-supported basic research on perceptual, cognitive, linguistic, social, and emotional development.

NICHD's Human Learning and Behavior Branch (HLB) primarily supports the work of behavioral scientists investigating the social, emotional, cognitive, learning, language, and health behavior of children during development from the fetal period to the onset of adulthood. The Branch's scientific framework for supported studies relates to a biopsychosocial model of development. Thus, the interaction of biological, psychological, and

social factors, as reflected in studies of children, as well as animal models, is viewed as essential for gaining an understanding of the mechanisms underlying behavioral development.

A recent example of HLB-supported research findings that made headlines nationwide is the NICHD Study of Early Child Care. Initiated in 1989 and scheduled to continue through 1999, this longitudinal study of the effects of child care on children's development from infancy through age seven is the most comprehensive of its kind. Already, preliminary findings from more than 1,100 families indicate that child care in and of itself neither adversely affects, nor promotes, the security of children's attachment to their mothers at the 15-month-age point. Low-quality care, more than 10 hours per week in care, and multiple child-care arrangements, however, adversely affected attachment—defined as an infant's comfortable sense of trust in his or her mother—when combined with maternal insensitivity to

SEE NICHD ON PAGE 32

For other stories in this ongoing series focusing on research support to psychologist Principal Investigators, see the March 1992, September 1993, November 1994, and May/June 1996 *Observer*. Those past *Observer* issues feature similar "roundups" of behavioral science grantees funded by the National Institute of Mental Health, the National Institute on Drug Abuse, the National Institute on Alcoholism and Alcohol Abuse, and the National Institute on Neurological Disorders and Stroke, respectively.

Future *Observer* issues will continue this series with a focus on other significant agencies and some of the more obscure federal outposts of basic and applied behavioral science grant support.

NICHD Projects Whose PIs Are Psychologists

Fiscal Year 1995

Principal Investigator	Affiliation	Grant Title	<p>NICHD Psychology Grants in FY 1995 Continued on page 32</p>
<p>ABBEDUTO, LEONARD J ABBEDUTO, LEONARD J ACKROFF, KAREN ACREDOLO, CURT R ADAMS, JANE BAILEY, DONALD B BAILLARGEON, RENEE L BARKLEY, RUSSELL A BAUER, PATRICIA J BAUM, MICHAEL BAUMEISTER, ALFRED A BEALER, STEVEN L BELLUGI, URSULA BELSKY, JAY BENASICH, APRIL A BERNINGER, VIRGINIA W BERTENTHAL, BENNETT I BIRCH, EILEEN E BLACHER, JANET B KATHRYN BOOTH, CATHRYN</p>	<p>UNIV OF WISCONSIN MADISON UNIV OF WISCONSIN MADISON BROOKLYN COLLEGE UNIV OF CALIFORNIA DAVIS UNIV OF MASSACHUSETTS BOSTON UNIV OF NORTH CAROLINA CHAPEL HILL UNIV OF ILLINOIS URBANA-CHAMPAIGN UNIV OF MASSACHUSETTS MED SCH UNIV OF MINNESOTA TWIN CITIES BOSTON UNIV VANDERBILT UNIV UNIV OF TENNESSEE-MEMPHIS SALK INSTITUTE FOR BIO STUDIES PENN STATE-UNIV PARK RUTGERS THE STATE UNIV NEWARK UNIV OF WASHINGTON UNIV OF VIRGINIA CHARLOTTESVILLE RETINA FOUNDATION OF THE SOUTHWEST UNIV OF CALIFORNIA RIVERSIDE UNIV OF ILLINOIS URBANA-CHAMPAIGN UNIV OF WASHINGTON</p>	<p>LINGUISTIC COMMUNICATION AND MENTAL RETARDATION POSTDOCTORAL TRAINING IN MENTAL RETARDATION RESEARCH PSYCHOBIOLOGY OF FORAGING AND FEEDING COGNITIVE UNCERTAINTY AND COGNITIVE DEVELOPMENT ISOTRETINOIN TERATOGENICITY—OUTCOME AT AGE 10 LATINO FAMILIES OF CHILDREN WITH MENTAL RETARDATION INFANTS' APPROACH TO LEARNING ABOUT THE PHYSICAL WORLD MULTIMETHOD ASSESSMENT OF DRIVING SKILLS IN ADHD TEENS EFFECTS OF TEMPORAL STRUCTURE ON MEMORY FOR EVENTS DIFFERENTIATION OF SEXUAL BEHAVIOR RESEARCH PROGRAM ON RETARDED INTELLECTUAL DEVELOPMENT NEUROTRANSMITTER AND OXYTOCIN RELEASE IN LACTATION LANGUAGE MODALITY AND THE BRAIN THE NICHD STUDY OF EARLY CHILD CARE INFANT PERCEPTUAL ABILITIES AS COGNITIVE PRECURSORS INTERVENTIONS FOR COMPONENT WRITING DISABILITIES INFANTS' SENSITIVITY TO KINEMATIC INFORMATION OMEGA-3 FATTY ACIDS AND VISUAL DEVELOPMENT ADOLESCENTS WITH HANDICAPS—LIFESPAN & CULTURAL CONCERNS BOCK, SYNTACTIC PROCESSES IN LANGUAGE PRODUCTION THE NICHD STUDY OF EARLY CHILD CARE</p>	

Update on the Activities of the National Institutes of Health Office of Behavioral and Social Science Research

by
Norman B. Anderson
OBSSR Director

In 1993 Congress established the Office of Behavioral and Social Sciences Research (OBSSR) at the National Institutes of Health (NIH) in the belief that scientific research on behavioral and social factors had been under-funded relative to their contributions to health and illness and compared with NIH funding for the biomedical sciences. The OBSSR officially opened in July of 1995 (see July/Aug. 1995 *Observer*). The purpose of this column is to provide a brief update on some of the Office's activities over its first ten months of existence.



Defining Behavioral and Social Sciences Research

Congress mandated that OBSSR develop a standard definition of 'behavioral and social sciences' research that could be used to accurately assess and monitor NIH funding in this area. Past attempts at assessing and monitoring NIH support of the behavioral and social sciences have suffered from the lack of a uniform definition of the field that could be applied across all NIH institutes and centers.

A draft definition was developed by OBSSR and then reviewed in a series of nine focus groups of scientists from fields such as psychology, sociology, social work, anthropology, nursing, psychiatry, public health, demography, epidemiology, behavioral neuroscience, psychopharmacology, behavioral physiology, and health and behavior. The definition was revised based on comments from those focus groups and has now been distributed to the governing boards of various behavioral and social science organizations for further review. Prior to using the definition to assess the NIH portfolio and reporting the results to Congress, the definition will be tested to ensure that it is effective in capturing all behavioral and social science grants, while excluding those outside this field.

Developing a Strategic Plan

The OBSSR also has worked to develop a strategic plan to assist in charting the future direction of the Office and in establishing its priorities. Two strategic planning meetings were held in February and March involving over 80 scientists, science administrators, and representatives of science organizations. The recommendations from those meetings will form the basis of the OBSSR Strategic Plan. This document will outline specific goals, strategies, and actions that will serve as the core activities of OBSSR for the next three to five years.

Funding Behavioral and Social Sciences Research

In the funding arena, OBSSR organized a trans-NIH and trans-agency Request for Applications (RFA) on violence

against women and violence within the family. This RFA was a collaboration between OBSSR and the NIH Office of Research on Women's Health, the National Institute on Aging, the National Institute on Alcohol Abuse and Alcoholism, the National Institute on Drug Abuse, the National Institute of Mental Health, the Centers for Disease Control and Prevention, the National Institute of Justice, and the National Center on Child Abuse and Neglect. This trans-NIH/trans-agency collaboration will serve as a prototype for other planned funding initiatives to be coordinated by OBSSR. That is, OBSSR will identify areas of research that cut across institute boundaries and that may be suitable for the RFA or PA (Program Announcement) mechanisms.

The Office also uses a portion of its own budget to support behavioral and social sciences research grants. In fiscal year 1995, a total of 39 research and conference grants were supplemented, fully funded, or co-funded (with an institute) using OBSSR funds. These grants covered a wide variety of fields and involved practically every institute at NIH. For fiscal year 1996, the focus of funding from OBSSR will be basic behavioral and social sciences research. Peer-reviewed grants that are highly rated but that miss the funding payline will be considered.

Increasing Behavioral and Social Science Visibility In the NIH Community

The visible presence of behavioral and social sciences research in the vibrant intellectual community on the campus of NIH is of critical importance. The more that biomedical researchers and administrators know about the strength of our science, the better it is for the advancement of the field. The Office has both organized and participated in several activities designed to highlight discoveries in our field. For example, in conjunction with the Behavioral and Social Sciences Research Coordinating Committee (BSSR-CC, formerly the Health and Behavior Coordinating Committee), the Office sponsors a seminar series that brings to NIH some of the top behavioral and social scientists to make formal presentations. The Office also coordinates monthly briefings for NIH Director Harold Varmus, during which individual behavioral and social scientists discuss their research in an informal setting. Finally, the OBSSR is planning three major scientific conferences to be held at NIH. These include conferences on the science of self-report and the contributions of basic behavioral and social sciences research to prevention, as well as the task of facilitating collaborations between behavioral and social and biomedical researchers in the oral health field.

The first year for OBSSR has been both exciting and challenging. I look forward to continuing to work closely with the behavioral and social science community to remove the artificial separation between biomedical and behavioral and social science research and have them viewed as equal and complementary partners in achieving the nation's health goals. ♦

Progress in the Prevention Of Mental Disorders

NIMH report reinforces Institute of Medicine on the coming of age of prevention research, outlines next steps

"It is very important that psychology, as well as other behavioral sciences, become aware of the recent emergence of prevention as an area [of legitimate research]," says Irwin Sandler of Arizona State University. Sandler and Jean Ann Linney (University of South Carolina) were co-chairs of the Fifth National Conference on Prevention Research, hosted this year by the National Institute of Mental Health (NIMH), May 8-11, in McLean, Virginia.

To facilitate this awareness, participants at that meeting received the latest major report on prevention research, *A Plan for Prevention Research for the National Institute of Mental Health: A Report to the National Advisory Mental Health Council*. The 44-page NIMH report summarizes two earlier reports, one from NIMH (*The Prevention of Mental Disorders: A National Research Agenda*), and one from the Institute of Medicine (IOM) (*Reducing Risks for Mental Disorders: Frontiers for Prevention Intervention Research*).

The Elements of Good Research

The NIMH report is billed as "an integrative summary of the scientific and programmatic steps NIMH should take for advancing the field of prevention science." Like its predecessors, the new report recommends funding initiatives, and describes some of the desirable characteristics of such research. Modern prevention science centers around four concepts. The first is risk reduction, which means that although the ultimate goal is to prevent cases of mental disorder, the interventions attempt to decrease specific risk factors and increase specific protective factors in the lives of the study participants; that is, to modify shorter-term (and more easily measurable) aspects of behavior and environment.

The second focus is on developmental processes. The studies are longitudinal and must ask how risk factors conspire to cause mental disorders as well as determine during which critical periods in the life span interventions can have maximum impact.

The third element of modern prevention research is an epidemiological perspective, which is required to identify the essential risk and protective factors that might be important or useful to modify.

The fourth concept in the quartet is that of the cyclical and iterative nature of research, meaning that the outcomes of an intervention must be objectively evaluated, and that assessment must inform the next revision and next trial of the intervention. Although it might seem unnecessary to spell this out for the researchers who develop preventive interventions, these programs and evaluations must eventually be performed in the communities by teachers, social workers, and others with no previous training in research.

NIMH Prevention Conference

Sandler and Elaine Walker (Emory University) summed up the main and the new ideas reinforced at NIMH's McLean conference on prevention. Sandler emphasized the need for NIMH to take an active role in coordinating the prevention research activities of the many federal agencies involved, and he pointed to the positive results that have been coming in from many research groups. "The payoff is there," he says, referring both to the efficacy of these programs and to their benefit/cost analyses. "Quite a few of these programs are demonstrating efficacy comparable to the best work NIH does in terms of new prevention or treatments for other types of disorders." But, one of the next big issues in the field is dissemination of the results of prevention trials, and "dissemination is as much a scientific research issue as efficacy of the interventions per se," Sandler said.

Agreeing, Walker said that "one of the major goals of the conference was to present an increasingly integrated framework for the interaction of biological and psychosocial factors in the etiology and prevention of mental disorders." As an example, she referred to animal research showing that stress can have structural and functional consequences in the central nervous system, and that some of those consequences can be reversed by environmental factors. "There is no real distinction between biological and psychosocial aspects of development," she says. And, in reference to the relatively modest costs of prevention as compared with biomedical technology, she says, "it is just as important to know about the malleability of human development, as to know about brain structure and its abnormalities."

With the recent advances in methodology and the positive research results that have come out, the mood within the prevention research community about prospects for further expansion of the field is guardedly optimistic, despite the federal budget crunch. "We are hoping that as positive findings are disseminated, the message will get out to the public and to Congress," says Walker.

Developments in Prevention Research

What has been going on in this field?

"Over the years, there have been a number of prevention movements, but because research methodology was not yet well-developed, these movements were not scientifically based. There were good reasons to shy away from prevention research—the methodology simply was not good enough. But this is a different time," says Patricia Mrazek, who was the study director for the 1994 IOM report *Reducing Risks for Mental Disorders* (see March 1994 *Observer*).

Beverly Long (now President of the World Federation for Mental Health) was on President Carter's Commission on

SEE REPORT ON PAGE 24

Pulp Non-Fiction: NIH May Get 6.5-Percent Boost

Congressional "Bestseller" reflects APS priorities

It's summer, a time when one of the most important decisions any of us makes is...what paperback to take on vacation. In Washington, one of the hottest new books just hit the press, and while you won't see it reviewed in the *New York Times*, it's a must-read.

We're referring, of course, to the Fiscal Year (FY) 1997 appropriations report for the National Institutes of Health (NIH) issued by the House of Representatives. (See report excerpts on opposite page.) What it lacks in plot, it more than makes up for in intrigue and drama, as in: we're very intrigued by the fact that the House Appropriations Committee has provided a 6.5-percent increase in the NIH budget, and there are some dramatic statements about the value of behavioral research and research training at NIH.

First Step

The passage of the NIH budget and the release of the appropriations report is the first major step in the FY97 appropriations process for NIH, and it has set a positive tone for the rest of the process. The 6.5-percent increase for NIH is a sign of strong support for science, not only because of the amount of money it represents (NIH is at \$11.9 billion in FY96) but also because it is happening at a time when some government agencies are facing deep cuts and uncertain futures. If the House numbers hold, this will be the second year in a row that NIH gets a substantial increase in its budget.

The appropriations report, which is about the size of a paperback book, amplifies Congress's views on how NIH should be spending its budget. This year's report addresses a number of issues that reflect APS's priorities at NIH, particularly with regard to research training, which we conveyed in our NIH testimony (as reported in the May 1996 *Observer*).

In any year, this kind of recognition is no small feat, given the enormous competition for attention in the selective House committee report. But this year, it may be

even more important than in previous years because it is occurring against the ongoing budget deficit debate, which at least publicly has been dominated by a cadre of legislators focused on very near-term budget cutting that is being driven either by fiscal or ideological causes.

Miles to Go

"While the House Committee's budget and report language are both very good news, I caution everyone against becoming complacent," notes Alan Kraut, Executive Director of APS. "We still have miles to go. The full House must approve the committee's version of the NIH budget and the Senate will be developing its own version. Then the two need to be reconciled."

"My view is that the House report represents a very good base, but we will continue working to preserve and even broaden Congress's support for behavioral research as the budget moves through the ensuing steps of the appropriations process," said Kraut. "I'm optimistic that the results will be a strong series of messages to NIH concerning new directions for expanding and strengthening its behavioral science portfolio."

Research Training

The House Appropriations Committee endorsed research training for behavioral science at several institutes as well as at the overall NIH level. In their report, they strongly encouraged the use of B/START (Behavioral Science Track Awards for Rapid Transition) grants to ensure a supply of young behavioral science investigators at the National Institute on Child Health and Human Development (NICHD), the National Institute on Aging (NIA), and the National Institute on Alcohol Abuse and Alcoholism (NIAAA). In addition, they asked the NIH Office of Behavioral and Social Sciences Research (OBSSR) to work with all institutes to develop small grants programs for young behavioral science

investigators.

[B/START, you may recall, grew out of concerns about the "greying" of the field, as indicated by the decline in support for young investigators at the National Institute of Mental Health (NIMH), the National Institute on Drug Abuse (NIDA), and elsewhere. APS worked on this with both Congress and NIMH, which launched the first B/START program in 1994. More recently, NIDA announced its own B/START program (see May/June 1996 *Observer*).]

The House Committee also has asked the NIH director to implement the recommendations of the National Academy of Sciences to increase the number of National Research Service Awards in behavioral sciences (as well as nursing, health services, and oral health research) while keeping level the number of biomedical science awards. To date, NIH has not implemented the NAS recommendations, and APS is concerned that this is a sign of their continued resistance to behavioral science.

Drug Abuse and Mental Health

The lawmakers underscored the importance of basic and clinical behavioral research in a number of areas, including drug abuse and mental health. In their report, they highlighted the importance of behavioral research in understanding and treating drug addiction, strongly commending NIDA's expanding efforts in these areas. They also expressed support for NIDA's research in HIV/AIDS, noting the role of drug use and related behaviors in the spread of HIV.

In the area of mental health, the House Committee said it was pleased to learn about the Human Capital Initiative (HCI) report on psychopathology research and added that in next year's appropriations committee hearings, NIMH should discuss how it might use the report, *Reducing Mental Disorders: A Behavioral Science Research Plan for Psychopathology*. The

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FY97 HOUSE APPROPRIATIONS REPORT ON NIH AND CDC

House Report 104-659
Excerpts

NATIONAL INSTITUTES OF HEALTH Office of the Director

Training—The Committee notes that the National Academy of Sciences recommended in its most recent assessment of the nation's need for biomedical and behavioral researchers that NIH increase the number of NRSA awards in behavioral science, nursing research, health services research, and oral health research, while keeping the number of NRSA awards in the basic biomedical sciences at current levels. The Committee requests that the Director report to the Committee NIH's progress in implementing these recommendations, including a plan and timetable to do so.

Office of Behavioral and Social Sciences Research

The Committee is pleased that the OBSSR has established a research training task force. The Committee encourages the Office to work with the ICD's [NIH Institute and Center Directors] to develop small grants programs for young investigators such as the B/START program or other mechanisms the OBSSR may determine are appropriate.

National Institute on Child Health and Human Development

Training.—As part of its effort to ensure the future supply of talented research personnel, the Committee encourages the NICHD to support an initiative such as B/START (Behavioral Science Track Award for Rapid Transition), aimed at younger behavioral science researchers.

National Institute on Aging

Training—As part of its effort to ensure the future supply of highly trained research personnel, the Committee encourages NIA to consider supporting an initiative such as B/START (Behavioral Science Track Award for Rapid Transition), aimed at younger behavioral science researchers.

National Institute on Alcohol Abuse and Alcoholism

Training—Since behavioral factors are important to alcoholism and alcohol abuse, the Committee encourages NIAAA to consider an initiative to support junior behavioral researchers, such as the B/START (Behavioral Science Track Awards for Rapid Transition) program which has been used by other Institutes.

Treatment matching—The Committee is interested to learn that Project MATCH, NIAAA's clinical trial of patient-treatment matching and treatment effectiveness, is approaching completion, and requests a report on the results of this important research as soon as it becomes available.

National Institute on Drug Abuse

Behavioral science research—The Committee understands that behavioral research is important to solving problems of drug abuse and addiction, and that behavioral interventions are the most frequently administered treatments for drug addiction, in some cases, the only available treatment. The Committee commends NIDA for its basic and clinical behavioral science activities aimed at better identifying those at risk for drug abuse and developing effective approaches for breaking the cycle of addiction. The Committee also encourages NIDA's initiatives in HIV/AIDS because of the increasing link between HIV infection and drug use and related behaviors.

National Institute of Mental Health

Clinical experiences—The Committee understands that much basic behavioral research can be brought to bear on the most serious mental disorders and encourages NIMH to develop mechanisms to build a generation of basic behavioral researchers who are sensitive to clinical issues.

Research plans—The Committee is pleased to learn that NIMH supported the development of a behavioral science research plan aimed at reducing depression, schizophrenia, and other severe mood and anxiety disorders. The Committee encourages NIMH to consider the plan in determining its research priorities, and looks forward to discussing the use of the plan in next year's appropriations hearings.

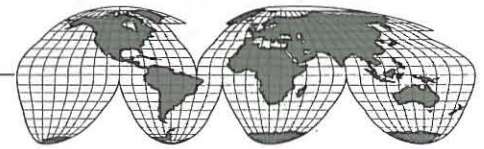
National Institute of Neurological Disorders and Stroke

Behavioral research—The Committee understands that NINDS supports a range of basic and applied behavioral research throughout its extramural divisions. The Committee encourages the Institute to continue its efforts to better understand the role of behavior in preventing and treating diseases and injuries of the brain.

CENTERS FOR DISEASE CONTROL AND PREVENTION

The Committee commends the Director's efforts to promote behavioral and social sciences research at CDC and for creating the position of Assistant Director for Behavioral and Social Sciences. The Committee believes that such research is integral to the CDC mission and requests the Director to provide a status report on CDC's activities relating to behavioral and social sciences research during the 1998 appropriations hearings.

International Psychology



Texan-Turkish Study of Learning Processes Thrives

But too few psychologists tap National Science Foundation international collaborative research programs

National frontiers are rapidly shrinking for scientific psychology. The Internet links thousands of psychologists worldwide. Psychologists from about 100 countries will gather for the International Congress of Psychology opening August 16 in Montreal, Canada.

Yet actual research collaboration between American psychologists and their colleagues abroad lags far behind the level that the friendly Internet exchanges and meetings at international congresses might suggest. In fact, international collaboration in psychological research appears to be running at levels somewhat below those currently achieved in other major fields of science, some officials of the National Science Foundation believe.

"I feel we [psychologists] are a little bit underrepresented in the international programs," says Joseph Young, the human perception and cognition specialist of NSF's Social, Behavioral and Economic Research (SBER) Division, and a Charter Member of APS.

"We don't do more poorly than anyone else in proportion to the number of applications submitted. Psychologists who apply generally do fairly well. But NSF just doesn't see a lot of proposals from psychologists."

The problem "isn't lack of interest but it may be lack of awareness," says Steven Breckler, who is responsible for the division's social and developmental psychology program. "It's just that nobody knows they can ask for funding from NSF's International Programs Division when they are developing that type of collaboration or want to do so."

The new program announcement of NSF's Division of International Programs (publication number NSF-96-14) lays out a broad array of fundable international opportunities that includes:

- ◆ Cooperative research projects that help to internationalize domestic research projects whose core support comes from an NSF research division or other sources.
- ◆ Dissertation enhancement awards for graduate students doing research at overseas sites.

- ◆ Post-doctoral international research fellow awards.
- ◆ Joint seminars and workshops for U.S. and foreign counterpart investigators.

Information on these programs is also available on the NSF home page on the world wide web, along with information on NSF core programs and other international funding opportunities at <http://www.nsf.gov/>.

NSF has budgeted \$16 million for funding by the Division of International Programs this year.

The funds are to be used primarily for the U.S. side of the exchange and collaboration programs, but NSF is especially interested in facilitating the development of science in developing nations, Breckler points out.

"NSF has a special emphasis on investing in the kinds of collaborations where a U.S. researcher might potentially serve the role even of a mentor in trying to get research projects off the ground in a developing country," Breckler said.

Many ex-Soviet, African countries, and other developing countries are sending representatives to the Montreal congress. They will come from some 50 countries not yet members in the International Union of Psychological Science, the sponsoring organization. But some of their national organizations are applying for membership in the Union.

JOSEPH YOUNG
NATIONAL SCIENCE FOUNDATION

Breckler and Young will be drumming up support for projects involving psychologists in such countries as well as advising psychologists on their potential proposals of all kinds at a session of the international congress in Montreal scheduled for Monday, August 19 at 5:30PM. The session was scheduled at the special request of APS member Kurt Pawlik of Hamburg University, Germany, president of the Union, and Gery d'Ydewalle, Secretary General of the Union, who visited NSF with APS Executive Director Alan Kraut several months ago.

Advice Is at Hand

Throughout the year, psychologists at NSF stand ready to answer questions and give advice to researchers who are

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developing an international collaboration or who anticipate doing so.

Breckler says, "Give us a call. We can help guide you on how to prepare a proposal, what kinds of things are fundable and what things are not." The staff include Breckler (social and developmental psychology), Joseph Young (human cognition and perception), Randy Nelson or George Uetz (animal research), and Fernanda Ferrera (language acquisition and linguistics). For their individual telephone numbers, call 703-306-1234.

A key to the success of a cooperative research proposal, Breckler says, is the ability "to argue that the international collaboration is important for the basic science—for example, the need for a particular population in country X, a particular situation there, or a unique local collaborators there. That's number one, to show that the only way to get the basic science done is to do it with that specific kind of scope. And secondly, show that the research is also being supported by the local government or other local sources, which gives a very important signal that this is considered by the local community as meritorious research."

The international program support for cooperative grants typically ranges from \$10,000 to \$15,000 a year for the three-year period of the grant. This is supplementary support to cover international and local transportation, some living expenses, and publications. If researchers need to cover salaries, major equipment or supplies, and other big items, they may go to the NSF domestic program or other sources for funding.

Eligibility guidelines for international programs are identical to those for NSF domestic programs. Many health-related fields are not eligible for NSF funding.

Psychologists with core grants already funded by the National Institutes of Health might be prudent to contact NIH's Fogarty International Center for Advanced Study in the Health Sciences (tel.: 301-496-2516, or e-mail: m3p@cu.nih.gov) to see whether Fogarty or NSF would be the better channel for their funding proposals.

Strange Birds: Austin and Istanbul

An example of a mutually beneficial NSF-funded collaboration is one that joint Michael Domjan of the University of Texas-Austin with Falih Köksal of Bogazici University in Istanbul for studies of how learning processes can influence naturally occurring behavior, specifically in the sexual behavior of quail. Domjan, an APS Fellow, had been working in this area with

funding from NSF at first and then from the National Institute of Mental Health.

"Köksal came up with a number of rather interesting ideas and new directions in which to take the work," Domjan said.



Michael Domjan and Falih Köksal

Their collaboration goes back to 1991, but the three-year NSF international cooperative research grant dates only to May of this year.

They are currently exploring the malleability of mating, a behavior often considered to be predominately innate and regulated primarily by the hormonal system. They hope to extend the generalizability of conditioning phenomena beyond the traditional ingestive (e.g., conditioning to food) and

defensive (e.g., shock avoidance) contexts. Specifically, they are examining the possibility that animals can learn to respond in a sexual fashion to an artificial object simply by observing another "demonstrator" animal. In this case, the artificial object is a soft terrycloth object about the size of the female bird that the male can peck, mount, and copulate with. To train the demonstrator bird to respond to the object in the first place, before the observer bird can possibly imitate his response, the artificial object is paired with the opportunity to

copulate with a live female, Domjan explained.

"Köksal's extension of this study is to see if this kind of learning is facilitated by observation," Domjan said. The observers do learn to copulate with the artificial object. But do they learn how through observation? "The evidence," Domjan said, "is a little bit complicated."

The benefits for Köksal? Basic work on learning mechanisms is not well known in psychology departments in Turkey, so he has a better intellectual

environment and laboratory resources to develop his ideas at the University of Texas, Domjan notes. One direct outgrowth of the collaboration is the establishment of a new laboratory to study learning mechanisms in Istanbul.

And on Domjan's side? "Köksal's asking questions that I haven't thought about," Domjan said. **D.K.**

[The ability] to argue that the international collaboration is important for the basic science—for example, the need for a particular population in country X, a particular situation there, or a unique local collaborators there. That's number one, to show that the only way to get the basic science done is to do it with that specific kind of scope. And secondly, show that the research is also being supported by the local government or other local sources, which gives a very important signal that this is considered by the local community as meritorious research.

STEVEN BRECKLER
NATIONAL SCIENCE FOUNDATION

OUTGOING PRESIDENTIAL COLUMN

Psychological Science at the Grass Roots

Richard F. Thompson
APS Past-President

I was a graduate student in the psychology department at the University of Wisconsin in the 1950s. My first experiences with the larger field of psychology beyond my own graduate program were at the Midwestern Psychological Association (MPA) meetings. It was a most exciting time—the heyday of Hull-Spence theory, operationism, and the explosion of empirical research in psychology. The MPA programs were the science of psychology at the time. Even more exciting for a student were the sometimes heated, but always entertaining, all-night debates among scientists such as Kenneth Spence, Judson Brown, and Harry Harlow.

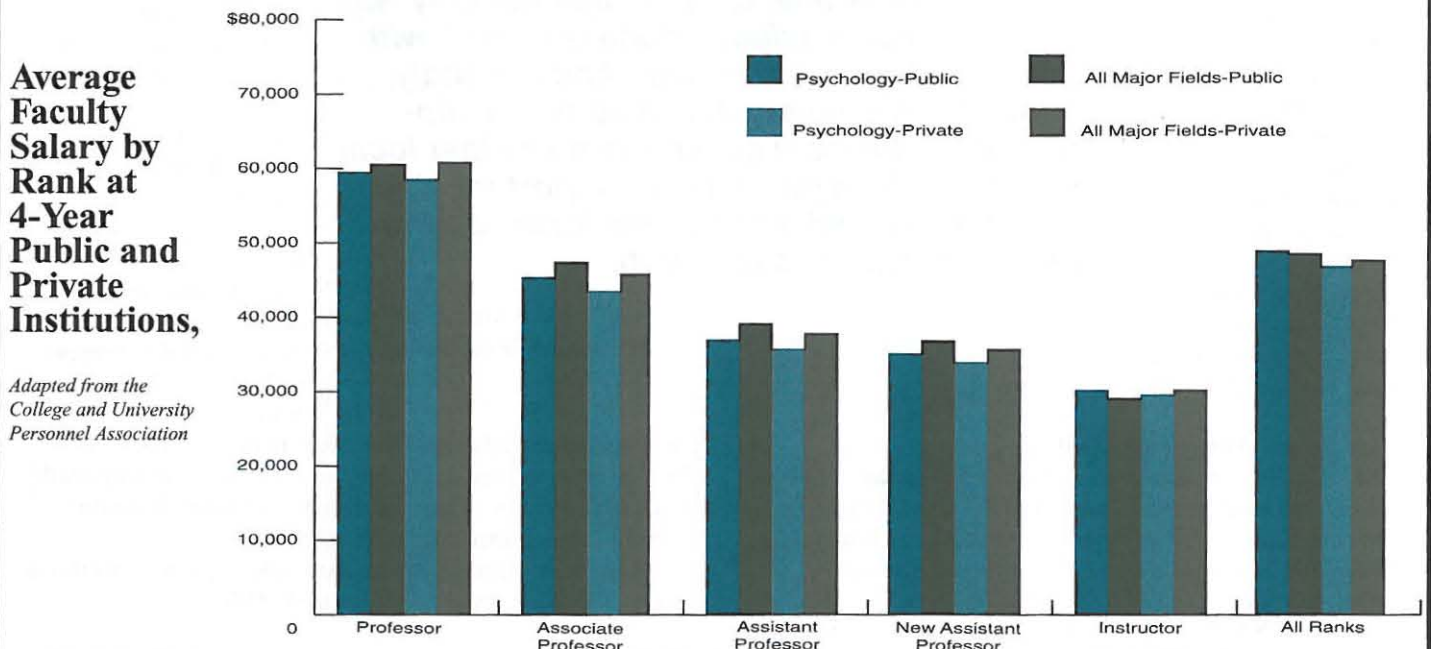
Last year I had the honor of serving as President of the Western Psychological Association (WPA). The scientific programs at the WPA today are every bit as good as they were at the regional meetings in the “good old days.” The subject matter may have changed, but the quality of science remains very high. Indeed, in my activities as President of the WPA and of APS, it is very clear that the regional psychological associations have much more in common with APS than with the American Psychological Association (APA). (I can only speak from experience with MPA and WPA but assume the other regional organizations are similar).

The major purpose of the regional organizations is to hold an annual scientific meeting and to support educational and scientific activities to the extent their very limited budgets permit.

Insofar as WPA and APS are concerned, there is already significant inter-organizational cooperation. For example, the two organizations have freely exchanged their membership lists and mailing labels, among other resources, with each other. (It is likely that some members of the regional organizations are not members of APS). But the Board of WPA has come up with some additional suggestions for further cooperation. For a modest cost, APS could sponsor a speaker at each major regional meeting (as APA now does). Another suggestion concerns articles (e.g., How to Do Well in the Academic Job Interview, How to Win Acceptances by Psychology Journals, How to Use the '94 APA Style Guide) in the *Observer*, many of which are directly relevant to graduate students. Collections of such articles could be made available at cost for students and advertised and distributed via the regional newsletters/organizations. Over the years, APS has advertised the free availability of single copies of reprint versions of these kinds of articles to students and others and especially welcomes inquiries about permission to reprint in regional newsletters.

At this point I am not proposing formal organizational ties between APS and the regional associations, although it is something to consider for the future (a counter, if you will, to the State Association-APA-practitioner axis). But much can be done informally in terms of information exchange, interactions, and mutual encouragement of the science of psychology. ♦

Psychology Salaries in Perspective



APS Hires First Deputy Exec Director

A psychologist who is at home both in business and association management

Christina Herlihy started her new job as Deputy Executive Director of APS just in time to be introduced to members attending the Society's eighth annual convention.

The Deputy Executive Director slot is a new one on the Society's "lean but nice" staff, and Herlihy's appointment is arguably one of the most important APS has made since its start up eight years ago when Alan Kraut came on as the Society's first Executive Director.

Herlihy is a developmental psychologist whose background brings together the diverse worlds of professional associations, private business, academia, and international diplomacy.

"Cross-association" experience is a phrase she uses in talking about her varied career. Since receiving her PhD from Ohio State University in 1977, Herlihy has been a senior staff member of four major associations, three of them in allied health and medical fields.

In the business world, meanwhile, she created, launched, and operated a successful two-store retail toy business for four years. Her company sold toys with high learning potential and offered a large selection of toys tailored to special needs of children with developmental and other disabilities. She refers to this rough and tumble introduction to the world of business as "my hands-on MBA."

Her academic world most recently has centered on the psychology department of George Mason University. From 1983 through 1993, she held a series of full-time and adjunct appointments there.

Her diplomatic experience goes back to the American Embassy in Rome, where, fresh out of Ohio State, she coauthored a proposal to make mental health services available for embassy personnel at the site.

The resulting services eventually provided a model for mental health programs in other embassies. She lived in Rome over two years, teaching for the junior year abroad program at Loyola University-Chicago.

Herlihy came to APS from a senior staff position with the American College of Radiology. Earlier she was an associate director of the American Physical Therapy Association, and before that she was acting Executive Director of the American Occupational Therapy Certification Board. She also has directed the accredi-

tation program for the National Architectural Accrediting Board.

While Herlihy is an old hand at associations, APS is her first purely psychology/behavioral science society. Her step aboard APS is, at the same time, a significant new development in the society's growth, Kraut noted.

"I see Chris as becoming essentially the day-to-day operations officer for our society," Kraut said. "We've grown so quickly and expanded in so many areas that we now need to put in place some more standard mechanisms in the way we operate. It's time to consolidate some of our gains and coordinate some of our offices in ways we haven't been doing up to now.

"But I think Chris also will help us look in new directions. I don't want her to just consolidate what we have. I want her to bring in her own vision and experience as a society manager, and her background in psychology," Kraut added.

For the first six months, the plan is that Herlihy and Kraut will be doing most of the same things more or less interchangeably, except in policy issues and funding agency areas. Kraut will maintain the lead role in those areas.

Herlihy sees her exceptional amount of experience with societies and associations as the major factor tipping the scales in her favor in APS's long search for a deputy executive director.

She speaks of "association management as a unique environment where the product you sell is service."



Christina Herlihy

I see Chris as becoming essentially the day-to-day operations officer for our society.... But I think Chris also will help us look in new directions. I don't want her to just consolidate what we have. I want her to bring in her own vision and experience as a society manager, and her background in psychology.

ALAN KRAUT
AMERICAN PSYCHOLOGICAL SOCIETY

For Herlihy, "the entire purpose of a society is to serve the members—and clearly, member services are the most critical factor in the success or failure of an association." She says, "I've had a lot of opportunity to observe how well members were being served in the various arenas. I've gathered a storehouse of ideas about what works and what doesn't, and how you can combine different approaches to increase chances of success."

Kraut commented, "It's clear Chris has what it takes to make an association succeed. But it's not just her experience as a society manager. It's the whole package—her background in psychology, her having started a business from scratch and having made it successful." ♦

Spotlight on Research

Is Racism on the Decline in America?

Innovative cognitive research methods allow new insights into racial attitudes of White Americans

Has racism declined as much as surveys indicate? The research of John Dovidio and Samuel Gaertner, both APS Fellows, and their colleagues at Colgate University and the University of Delaware has explored how racism has evolved over the past 20 years into more subtle and perhaps more insidious forms.

Their work, which has been supported in part by a grant from the National Institute of Mental Health (NIMH), has examined one prevalent type of this modern, subtle form of bias—aversive racism. Aversive racism is characteristic of many White Americans who possess strong egalitarian values and who believe that they are not prejudiced. But many also possess negative feelings and beliefs of which they are either unaware or try to dissociate from their images of themselves as being nonprejudiced.

These negative feelings may be rooted in common cognitive, motivational, and sociocultural forces that can affect most White Americans. The convictions of fairness, justice, and equality, along with the almost unavoidable development of racial biases, form the basis of the ambivalence that aversive racists experience.

Historical Perspective

Research psychologists have long studied race relations in America. The thrust of this work largely has been to understand the nature of Whites' prejudice toward people of color (mainly toward Blacks) and to explore how interracial contact situations can be structured to reduce this prejudice. Over the past three decades, nationwide surveys have documented significant declines in expressions of prejudice, negative stereotyping, and resistance to equality by Whites.

Nevertheless, substantial gaps in social, economic, and physical well-being between Blacks and Whites persist, and in some cases are growing. Blacks continue to report greater distrust of our social system and of other people than do Whites. For example, in one nationwide survey, only 16% of Blacks (compared to 44% of Whites) felt that "most people can be trusted." These data challenge the assumption that race is no longer a critical issue for our society.

Indirect Discrimination

This ambivalence produces more subtle and indirect manifestations of discrimination than more traditional, overt forms of prejudice. Unlike the consistent pattern of discrimination that might be expected from people who display racism overtly (i.e., "old-fashioned racists"), whether aversive racists discriminate against Blacks depends largely on the situation. Because aversive racists consciously endorse egalitarian values, they do not discriminate against Blacks in situations in which

discrimination would be obvious to others and themselves. However, they do discriminate in situations in which appropriate (and thus inappropriate) behavior is not obvious or when an aversive racist can justify or rationalize a negative response on the basis of some factor other than race. For example, in one study of helping in an emergency, White bystanders were as likely to help a Black victim as White victim when they were the only witness to an emergency and their personal responsibility was clear. In a condition in which the bystanders believed that there were other witnesses to the emergency and they could justify not helping on the belief that someone else would intervene, Whites helped the Black victim half as often as they helped the White victim. Bias was expressed but in a way that could be justified on the basis on a non-race-related reason—the belief that someone else would help.

In a recent invited address at the Eastern Psychological Association, Dovidio argued that aversive racism may contribute to the distrust that Blacks have toward people in general and to Whites in particular. In a recent study of simulated juridic judgments in which White participants made recommendations for the death penalty in a murder case, participants who scored high on a prejudice scale made significantly stronger recommendations for capital sentencing for Black defendants than for White defendants, even though the facts in the case were identical.

Dovidio suggests that this overt form of discrimination can justifiably breed racial mistrust. Participants who scored low in prejudice, on the other hand, showed a different pattern of results. They did not discriminate against the Black defendant when there was a possibility that their action would be seen as racially motivated. But, when racial bias could be discounted as a motivation in a condition in which a Black juror advocated the death penalty for the Black defendant, low-prejudice-scoring Whites showed the same pattern of discrimination that was evidenced by high-prejudice-scoring Whites. This seemingly inconsistent pattern of response by Whites who say they are not biased—sometimes discriminating against Blacks and sometimes not—can also contribute to the distrust of Whites by Blacks.

Because self-report measures of prejudice are susceptible to conscious efforts to appear unbiased, they may not be effective at distinguishing aversive racists (people who consciously subscribe to nonprejudiced ideals but have unconscious negative feelings) from truly nonprejudiced Whites. Dovidio proposes that alternative techniques are needed. Recent studies by Dovidio, Gaertner, and their colleagues, along with independent programs of research by



John Dovidio

MISCELLANY

Russell Fazio at Indiana University, Patricia Devine at the University of Wisconsin, Marzu Banaji at Yale University, and Chick Judd and Bernadette Park at the University of Colorado, have focused on using "priming" and response-latency measures to supplement self-report measures. These measures are based on techniques commonly used in cognitive psychology. In priming studies, for instance, a prime could be the face of a White or Black person or a house. After seeing this prime, participants are asked to make a judgment about a word that follows (e.g., "is it a word?"; "Can this word ever describe the category of objects represented by the prime?"). The quicker people can make that decision, the more associated these categories and characteristics are assumed to be.

Predicting Behavior

These studies demonstrate that Whites, even those who appear nonprejudiced on self-report measures, have generally negative associations with Blacks. As Dovidio notes, the general dissociation between what Whites report their attitudes are on prejudice scales and their spontaneous responses using priming techniques is consistent with the aversive racism framework. Which, then, is a person's true attitude? Rather than asking this question, Dovidio suggests that it may be more productive to ask, "Which aspect of a person's attitude predicts what type of interracial behavior?" Specifically, Dovidio and his colleagues have found that self-report measures of prejudice are better predictors of deliberative, overt forms of discrimination, such as recommending harsher sentences to Black defendants and evaluating Black interviewers less favorably than White interviewers. He remarks, "If a White person boldly indicates that he or she has negative attitudes toward Blacks on a prejudice scale, it is not surprising that they would be more likely to openly discriminate against a Black person." However, a response latency measure of unconscious racial bias is a better predictor of the spontaneous activation of negative racial stereotypes and of less controllable behaviors, such as nonverbal behavior.

In his address, Dovidio explained that the development of these new techniques for measuring automatic, often unconscious, racial attitudes can help us better understand barriers to interracial communication. Whites and Blacks may be attending to different aspects of their interactions. In one of Dovidio's recent studies, a Black and a White person first interacted and then completed questionnaires that asked how friendly they felt they behaved during the conversation and how friendly their partner acted. In general, how friendly Whites thought they were correlated with their self-report prejudice scores: Those who said they were less prejudiced said that they behaved in a more friendly manner with the Black partner in the subsequent interaction. Whites' perceptions were guided by their conscious attitudes, and at this level they seemed to be behaving consistently. In contrast, the perceptions of Black partners about the friendliness of these same White participants were more strongly associated with the Whites' response latency measure of bias. That is, in assessing how friendly the White person was, Blacks may have been considering not only the overt, consciously controlled behavior of the partner but also the nonconscious behaviors (such as eye contact, nonverbal expression of discom-

SEE SPOTLIGHT ON RESEARCH ON PAGE 26

The National Institute of Drug Abuse (NIDA), the National Institutes of Health, and researchers at the University of Massachusetts recently announced the results of experiments that provide strong evidence that cocaine interacts directly with specific cocaine receptors in the fetal rat brain—a concept that NIDA Director Alan I. Leshner said was previously only a hypothesis.

"Using this animal model to further investigate the interactions of cocaine with these sites in the brain and their consequences can yield important insights into the mechanisms by which cocaine may affect the health and development of human newborns who are exposed to the drug during pregnancy," said Leshner.

The study was authored by Lauren P. Shearman, Lucille M. Collins, and Jerrold S. Meyer and will appear in the *Journal of Pharmacology and Experimental Therapeutics*.

A task force of the National Science Board (NSB), which oversees the National Science Foundation (NSF), recently concluded that there is no specific mechanism (i.e., fellowships, traineeships, or research assistantships) that works better than any other in helping young scientists launch a successful career.

According to Marye Anne Fox, who co-chaired the task force on graduate and postdoctoral education, there was just so little useful information available on the relationship between graduate student support and career paths that no single method of support really stood out.

In response to this finding, NSB asked NSF, which spends about \$285 million in support programs, to launch a number of pilot projects that would be rated for effectiveness.

A perennial gripe with the folks at the National Institutes of Health is with their use—make that non-use—of the term *behavioral*, as in "We fund lots of biomedical research." So what are we? Chopped liver? It's all the more noticeable because they're the only ones behaving this way. When the White House talks about NIH, they say *biomedical and behavioral*. Congress routinely calls NIH *biomedical and behavioral*.

So why do NIH'ers use only *biomedical*? To us, it's a sign of their continuing reluctance to embrace behavioral research. But recently, another explanation was given. You be the judge:

In May, a top NIH official was presenting Steve Hyman, the new Director of the National Institute of Mental Health at his first NIMH Advisory Council meeting. It was Hyman's big debut and the room was packed. The NIH official welcomed Hyman to the NIH *biomedical* family and told the crowd that both Hyman and NIMH were full partners in the NIH *biomedical* community. Bear in mind that NIMH funds about \$200 million in *behavioral* research each year!

Suddenly realizing this, the NIH official ad libbed that when she and NIH Director Harold Varmus use the word *biomedical*, "it is a given we also mean *behavioral*."

So, there you have it. *Biomedical* means *behavioral*. Of course. But one question was still being asked in the halls after this announcement: Does that mean that when somebody says *men*, it's a given they also mean *women*?

Those Who *Can*, Teach

Third Annual Teaching Institute addresses the paradox of "learning" to teach

When Elliot Aronson was a student, he had a recurring nightmare in which, at the end of a semester, he realized he had registered for a course and forgot about it until the afternoon of the final exam. When he became a teacher, he experienced a parallel dream in which he would show up to teach a large lecture and not be able to remember what he was going to say.

"I feel a little bit like that now," said Aronson, of the University of California-Santa Cruz. The very idea of talking about teaching to a group of fellow educators is daunting. What if I give a boring lecture on how to be an interesting lecturer."

Thus, Aronson characterized the paradox of learning to teach and got straight to the point of the third annual Teaching Institute, held June 29, at the APS annual meeting in San Francisco. How does one integrate teaching skills and suggestions with one's own inherent style, or, as Aronson put it: "How does one learn that which is unteachable?"

With six invited addresses, 35 participant idea exchanges, and more than 50 poster presentations, this year's Teaching Institute was the most successful ever. From the Opening Plenary Address, delivered by Aronson, to the



Robert Zajonc, Stanford University, speaks on intellectual environment and intellectual performance.



Elliot Aronson delivers the opening plenary address at the APS Teaching Institute.

Closing Address, delivered by Anthony Greenwald of the University of Washington, the goal of developing more effective and productive teaching was

pursued. Doug Bernstein, chair of the Teaching Institute Program Committee, opened the Institute the news that with more than 400 participants, this year's event garnered record-breaking attendance.

Teaching Teaching

"While it may be true that good teaching cannot be taught, it is also true that it must be learned," said Aronson. "I suspect that when it comes to conveying the art of teaching, most of us implicitly rely on models—that is, we make the implicit assumption that students will watch what we do and pick up something valuable.

But what is it that we think they are picking up?"

Aronson encouraged participants to think more analytically about what each does as a teacher. In fact, this is what he did in preparing for his opening address. In doing so, he was forced to analyze and articulate a lot of things that he does intuitively as a teacher, he said.

"It got me to realize that there seems to be some sense, some logic, some implicit method underlying my intuitive behavior. As Ovid once wrote... 'what before was impulse, now becomes method,'" he said. "Teaching is the kind of occupation, in a sense, where there are no esoteric secrets. Each teacher has to develop his or her own personal style."

In that spirit, Aronson shared his own techniques and teaching preferences. He broke teaching up into three different types: stand up teaching, sit down teaching, and mentoring, describing his experiences with each. "All three are important. For me, these are totally different experiences with different goals and different ways of achieving those

goals," said Aronson. "As a young, inexperience teacher, who, of course, was never taught how to teach, I didn't quite grasp that basic fact." As a result, he added, he sacrificed effectiveness. Over time, though, he found what worked best for him in each medium.

"In academia—more so than in other fields—there are not a lot of tangible

rewards in being a good teacher," he said. "So when it comes to teaching, why not just go through the motions? Why work so hard at it?"

Lasting Impact

The answer, he said, depends on the individual. "For me as a teacher, I want to have a lasting impact on the hearts and minds of the students. What do they remember [after they move on]? How has it affected their lives. The most dedicated teachers I know are those who expect more of themselves."

Six invited addresses followed Aronson's opening address and focused on some of the major changes emerging in several areas of research. Below is a small sampling of these presentations.



Doug Bernstein opens the Third Annual APS Teaching Institute with news that this year's event garnered record attendance.



Attendance at this year's APS Teaching Institute was standing room only.

I/O Psychology in the Next Millennium

As the structure and culture of organizations has changed, both the nature of work and the profile of the workforce has changed, posing new challenges for industrial/organizations psychologists. At his invited address, Sheldon Zedeck, of the

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University of California-Berkeley, discussed these changes as well as what must be done to meet the new challenges they have created.

"How are workers going to react to this new type of work and its new environment?"

Zedeck asked.

Zedeck outlined some of the changes that have occurred in work and the workplace.

"Work" is being redefined, he said. It is cognitively

more complex and more service-oriented than it has been. In addition, the diversity and advances in technology have changed its very nature. Meanwhile, at the workplace, demographics have changed and new abilities and skills are being demanded.

"My message is that there are changes in the way we think about work, the people who do the work, and the organizations in which the work is done," he told participants. "Our research, practice, and teaching need to reflect this."

Advances in Abnormal Psychology

Like industrial/organizational psychology, abnormal psychology has experienced significant change and growth in this century.

David Rosenhan, of Stanford University, examined some of these changes and their effect on the field.

"Abnormal psychology today is a much different field than it was when Robert White wrote his classic text," he said, referring to *The Abnormal Personality*. "Data now arrives in torrents and in a variety of forms and in countless vehicles."

Even over the past decade, said Rosenhan, there have been several trends



Teaching Institute attendee Laurie Friedman takes notes on Rosenhan's invited address.



The Participant Idea Exchanges are a favorite feature of the Teaching Institute.

that have changed the field of abnormal psychology including: a change in the focus from psychological forces to biological forces; a change in the focus from abnormality, per se, to vulnerability; and a growing awareness of ways in which notions of abnormality affect notions of society, leading Rosenhan to comment that "abnormality has gone mainstream."

"Hey, Mikey, he likes it!"

Are your preferences for different foods and tastes inherently biological or are they learned? According to Elizabeth Capaldi in her invited address, in omnivores, most food preferences are learned.

"Experience is one of the most powerful ways to affect food preference," said Capaldi, of the University of Florida, who added that the two factors that affect food preference are sweetness and familiarity.

Up to age two, kids will eat anything, she said. "We become familiar in those 2 years of life with food. After age two kids become neophobic about food—they are afraid of anything new," she said.

Capaldi described an example in

which a child of more than two years is given a piece of exotic cheese. The child rejects the cheese initially but after approximately 10 attempts to feed the child the cheese,



Kim Tang, Schoolcraft College, and Herbert Coleman, Austin (TX) Community College, discuss a poster presentation.

the child finally accepts and eats the food.

Posters and Exchanges

Always one of the favorite features of the Teaching Institute, the Poster

Presentations and the Participant Idea Exchanges disappointed no one this year. Table-hopping abounded as participants engaged in interesting and stimulating discussions ranging from the relationship

between the course lecture and reading material to making a large classroom feel more intimate to methods of involving graduate students in research and objective methods for subjective assessment of student work.

Posters presentations also presented a treasure trove of ideas and research. Topics again ran the gamut, appealing to teaching within any discipline of psychology. Marianne P. McGrath, of the University of Michigan-Flint, presented a poster detailing teaching undergraduates to learn and to care by applying development theory and research to student life.

"As college instructors, we want our students to be as fascinated by psychological theory and research," she wrote. "One of the best ways of accomplishing this is when students see the relevance of the course material to their own lives." ♦



John Krantz, Hanover College, presents a poster on innovative research conducted on the internet.



Wayson Lee, University of the District of Columbia, and Karen Hartle, California State University-Bakersfield, trade ideas.

CONVENTION FROM PAGE 1

between those events featured not only some of the most cutting-edge research in the behavioral sciences but some of the most dynamic and compelling speakers in the field.

"I thought it was marvelous," said outgoing APS President Richard F. Thompson. "It was the best one I have attended since the very first APS convention. The poster sessions were terrific.



At the Opening Ceremony, APS President Richard Thompson stands near William Butz, who introduced keynote speaker and Presidential Medal of Science winner Roger Shepard.

The invited addresses and symposia featured everything within the range of the behavioral sciences."

Poster presentations, invited addresses, and symposia make up the core of the APS annual meeting, and this year, more than 70 addresses and symposia presented research on some of the most compelling topics in the field including virtual reality, significance testing, socio-economic influences on health, social psychological perspec-



E. Tory Higgins, of Columbia University, gives an invited address titled "Promotion and Prevention: Regulatory Focus as a Motivational Principle."

tives on technology, and even the pregnancy of rats in space.

Convention Program Committee Chair Joseph Steinmetz said he was pleased that the variety of presentations offered were well received by convention attendees. "I thought it was an outstanding meeting that featured a good balance of presentations," he said. "The invited part of the program went well and the sessions were well attended. There also seemed to be a lot of exchanges and discussions in the poster sessions."

Nearly 900 posters were presented throughout the course of the convention, sparking numerous discussions throughout the aisles of the exhibit hall. APS Executive Director Alan Kraut said he thought the poster sessions were especially successful this year.



NSF Deputy Director Anne Petersen gives an invited address on how the social sciences advance the understanding of people and society, and play a critical role in solving both technical and social problems.

"We tried something a little different this year and it seemed to work well," he said. "We organized posters by topic rather than randomly and attendees enjoyed the ability to see many posters dealing within the same research domain."

Memory Across the Field

This year's Presidential Symposium on June 30, led by Thompson, featured a topic of concern across the discipline of psychology. "Memory: Mind, Brain, and Behavior" noted that the nature of memory is one of the earliest and most fundamental issues in psychology.

Michael Davis of Yale University, Stuart Zola of the University of California-San Diego, John Gabrieli of Stanford



Stuart Zola, of the University of California-San Diego, participates in the Presidential Symposium on memory, discussing the medial temporal lobe memory system.

University, and Elizabeth Loftus, of the University of Washington, were the featured speakers in the symposium.

Thompson called the symposium his personal highlight from the convention. "It featured four absolutely outstanding speakers who covered the topic across the field of psychology."

Kraut agreed that the symposium was one of the most exceptional events at the convention, and that it symbolized the intent of the APS annual meeting.

"Starting with the Presidential Symposium, we went from Michael Davis's work on molecular concepts of memory through to Beth Loftus's view of how people mis-remember. I thought that was great range," he said. "Later that evening was Phil Zimbardo's Bring-the-Family address (see page 18) on shyness and social interaction. So, in basically a five-hour period, attendees saw the gamut, from molecular, cellular behavior to the broadest of social interactions. I thought that was a wonderful display of what modern psychology is all about."

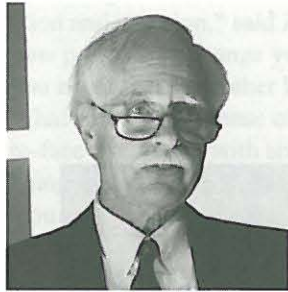
Perception Is Reality

Another highlight of the convention was National Medal of Science winner Roger Shepard's keynote address, "The Science of Imagery and the Imagery of Science," given at the Opening Ceremony on June 29.

A professor of psychology at Stanford University, Shepard was one of eight scientists honored by President Clinton last October at a White House ceremony with the most prestigious award

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FROM PREVIOUS PAGE



Roger Shepard

a scientist can achieve. Shepard had been cited for "his theoretical and experimental work elucidating the human mind's perception of the physical world and why the human mind has evolved to represent objects as it does; and or giving purpose to the field of cognitive science and demonstrating the value of bringing the insights of many scientific disciplines to bear in scientific problem solving."

Shepard's keynote address featured some of his own ink-drawn cartoons and visual illusions as illustrations demonstrating how ordinary perception depends on deeply internalized—but largely unconscious—knowledge about the three-dimensional world.

Both Thompson and Steinmetz said Shepard's presentation was a convention high point. "Not only was it a chance to hear one of the leaders in the field, but it was a very interesting, original and well-presented address," said Steinmetz.

Stop the Presses

"National media coverage of the meeting was intense," said APS Director



Kelly Evans and Patricia Colby, both of the University of California-Davis, check out the convention program after registering for the meeting.

of Communications Lee Herring. "We received front-page placements in *USA Today* as well as prominent articles in several other papers including local paper, *The San Francisco Chronicle*."

Substantial media interest has continued in the weeks after the meeting, he added.

APS Honors

The presentation of the William James Fellow and James McKeen Cattell Fellow awards concluded the opening ceremony.

This year's William James Fellow awards went each to William Greenough, of the University of Illinois-Urbana-Champaign, and Richard E. Nisbett, of the University of



James McKeen Cattell Fellows Harry C. Triandis and Jacquelynne S. Eccles and William James Fellow William Greenough display their citations after being honored at the Opening Ceremony.

Michigan. Greenough received the award for his contributions to revealing brain mechanisms that underlie learning and memory. His award citation reads:

**The American Psychological Society
William James Fellow**

William T. Greenough is one of the world's leading investigators of experience-related neuronal plasticity in the mammalian brain. He has been the major proponent of the hypothesis that the key element in learning and memory is the formation or retraction of synapses between neurons. He has pursued this general idea by investigating the effects of environmental complexity, social complexity, learned motor tasks, and physical activity on the dendritic structure of neurons, the frequency and morphology of synaptic connections between neurons, the functional efficacy of synaptic connections, and the molecular events underlying synaptic plasticity. When he began his career, the adult brain was thought to be an anatomically static structure. Now it is commonly accepted that rapid synapse formation can

occur throughout life, and the hypothesis that synapse formation lies at the core of behavioral plasticity has come to the fore. William Greenough's research forms the central body of work supporting this view. No other individual has been so devoted to this idea, so dogged in its pursuit, and so successful in demonstrating its importance. It is fair to say that he deserves the major credit for establishing the current view of dynamic, life-long synapse formation in the mammalian brain.

Richard Nisbett was honored as a William James Fellow for his seminal research in social psychology. His citation reads:

**The American Psychological Society
William James Fellow**

The American Psychological Society names Richard Nisbett as a William James Fellow in recognition of his distinguished achievements in psychological science. Richard Nisbett has produced a remarkable set of creative, theoretical initiatives in social psychology. His several clusters of ingenious experimental findings have reshaped central issues in social psychology. He has articulated a complex, sophisticated portrait of human individuals, deftly managing to combine seeming contradictions. On the one hand, he has convincingly argued the radical thesis that people have no introspective awareness of the causes of their own everyday behavior; that they are compelled by often unrecognized social and cultural forces and are misled by "folk wisdom" and their own illusory explanations of social events and relationships. On the other hand, he has shown it possible to train people to understand and apply practical mid-level principles of sensible judgment, he has demonstrated powerful features of human inductive reasoning, and he has maintained a sense of optimism, supported by data, concerning the positive potential of culturally diverse educational environments. He is a proud articulator of the knowledge base of social psychology, and has a spirited agenda for the future. Moreover, he is by example an outstandingly creative leader in psychological science.

The James McKeen Cattell Fellow awards in applied psychology were conferred each on Jacquelynne Eccles and Harry C. Triandis. Eccles, of the Institute for Social Research at the University of Michigan, was honored for her important work in developmental psychology.

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Think You Are Shy?

Bring-the-Family speaker Phil Zimbardo dazzles convention attendees with multi-media show

Although the Fourth of July was still a few days away, fireworks came early at this year's annual meeting in the form of Bring-the-Family speaker Phil Zimbardo's dynamic presentation.

In a multi-media presentation featuring film, television clips, cartoons, and other illustrations, Zimbardo enthralled a standing-room only audience on the topic of shyness.

Always a highlight of the annual meeting, this year's Bring-the-Family address, titled *The Personal and Social Dynamics of Shyness*, was especially well-attended by adults and many children as well. And despite the fact that Zimbardo spoke for an hour and a half—a half hour over his expected time—attendees steadfastly remained at their seats, while latecomers crowded into the back of the room, in order to catch everything Zimbardo had to share.

A professor at Stanford University, Zimbardo has studied the causes, effects, and implications of shyness and published several books on the topic. He is considered an expert in the field and is often quoted in news stories on the subject.

"I don't think of myself as a shy person," he said. "I think of myself as a person whose mission in life is to help bolster the human connection, to help people relate better, to help people enjoy and to make people feel special about themselves."

Shy Like Me

Zimbardo was introduced by his wife Christina Maslach, a professor at the University of California-Berkeley, who included a story about her husband in her introduction. When Zimbardo was a child, said Maslach, he spent six months isolated at a hospital with whooping cough and double pneumonia without any

close physical contact with his family. Maslach said that this may have been a factor in Zimbardo's dedication to studying shyness and to helping to foster the human connection and personal relationships.

"Last night was a wonderful experience for me," said Zimbardo in an interview the day after the address. "I had not really expected to have a full house with so many children. The topic was right because it is a topic of concern to adults and to children and in a sense, shyness is fascinating because it is part of the human condition—it is universal. At one level it is the appropriate defensiveness we all have in a new situation. The question is, why is it that some people carry this over into all situations—familiar and non-familiar—and what are the costs? [Shyness] is not an esoteric concept and children can relate to it."

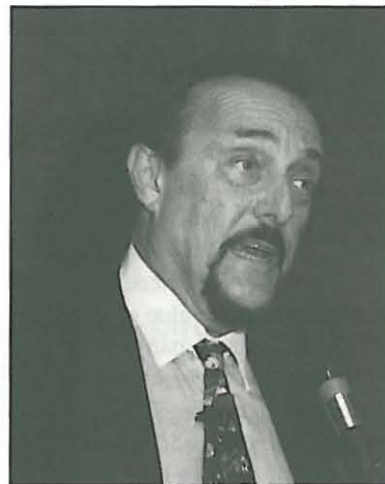
In mild forms, said Zimbardo, shyness is considered quaint, and even a desirable trait—even the butt of jokes," he said.

"But the point is that we don't see the extremes of shyness, because when shy

[W]hen shy people are effective in doing what they do, they hide it, they conceal themselves and they become anonymous. What happens is that you develop a whole lifestyle around that. You can choose an occupation that does not involve a lot of socializing and you can arrange you life to limit your human contact..

PHIL ZIMBARDO
STANFORD UNIVERSITY

people are effective in doing what they do, they hide it, they conceal themselves and they become anonymous. What happens is that you develop a whole lifestyle around that. You can choose an



Phil Zimbardo, of Stanford University, delivers the Bring-the-Family address on shyness to a full house.

occupation that does not involve a lot of socializing and you can arrange your life to limit your human contact," he added.

Quiet Coffee Shops

But shyness is not only a personal problem for individuals, said Zimbardo. Factors in society and technology are laying the groundwork for shyness to become a more menacing parasite on the human connection.

Advances in technology, from email and voice mail to ATM machines and computerized operators, have further removed people from one another.

To illustrate his point, Zimbardo described a coffee shop in San Francisco in which one might see 50 people, none of whom are speaking to each other. Instead, they are reading newspapers or typing on laptops.

"Although I consider myself an optimist, I am really pessimistic about this confluence of social trends, all of which are moving us in the direction towards

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increasing indifference to others, alienation and isolation," said Zimbardo. "It is now possible to arrange your life so that you never talk to another human being. What is lost is the sense of joy of a face-to-face interaction with another human being, with verbal feedback and touching. You can't get that electronically, or through a computer chip."

What this could lead to, said Zimbardo, is a new generation of people who are not social animals.

"In the past, I and other people have used shyness as an index to other prob-

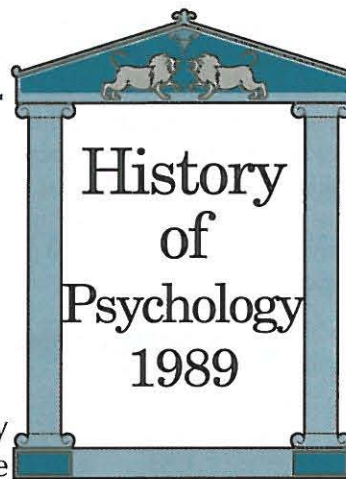
lems and now I think we should use shyness as an index of social pathology," said Zimbardo. "That is, if shyness is increasing—and it now looks as if it is, at about 1 percent a year—then it ought to be considered as a measure that something is wrong with society, not with shy people. In the same sense of an epidemic where a person caught in the vector of a disease is not responsible for the fact they got small pox or tuberculosis or whatever, in the same way, a person can become shy not because of inadequacies or fears of rejection, but because they are not learning basic social skills and not interacting with other people." ♦

The First APS Convention

Called "a kind of psychology Woodstock," the first convention of the American Psychological Society was held June 10-12, 1989. More than 1,000 people gathered in Alexandria, Virginia, to participate. The convention featured 21 invited addresses and symposia covering all aspects of scientific psychology, as well as keynote addresses by Princeton University's George Miller and then-incoming APS President James McGaugh. Judith Goggin and Nancy Anderson served as program co-chairs.

At the time of the convention, APS membership stood at 6,000 (today it is upwards of 16,000), and at that first annual meeting McGaugh asked members at the business meeting to take "the McGaugh Pledge": *I promise to recruit and deliver at least one new member for 1990.* Then-board member Milt Hakel added an addendum to that pledge: *Do it quickly; we can double by December.* Within months of the convention, Alan Kraut came on board as Executive Director (a position he still holds) and APS moved into its first office on North Carolina Ave., in Washington, DC.

Virginia O'Leary, also a board member at the time of the convention, summed up the event this way: "There was a wonderful spirit of excitement.... People had the sense of participating in an historic event that would make a difference in scientific psychology."



CONVENTION FROM PAGE 17

The American Psychological Society James McKeen Cattell Fellow

The American Psychological Society names Jacquelynne Eccles a James McKeen Cattell Fellow in recognition of her sustained and seminal contributions to developmental psychology and school policy. Eccles' research has demonstrated the central role of social context in children's and adolescents' development. Her work has built the case that some systematic individual-level, age-related changes are a consequence of systematic changes in the contexts, especially the family and the school, that individuals move through as they age. In explicating the way in which context operates in developmental trajectories, Eccles has also amplified the expectancy-value model of motivation and choice by showing how context shapes both expectancies and values. Her work especially highlights the centrality of values as key to understanding individual differences in such gender-related choices as taking advanced math and aspiring to jobs in fields linked to physical science, technology, and engineering. Eccles continually relates her work to school policy and educational curricula. The James McKeen Cattell Fellow Award is given in recognition of her leadership in the study of choice and motivation during childhood and adolescence and for her insistence on illuminating the critical significance of social context in formative periods of human development.

Harry Triandis, retired APS Charter Fellow, was cited for his distinctive work in cross-cultural psychology. His citation reads:

The American Psychological Society
James McKeen Cattell Fellow

The American Psychological Society names Harry C. Triandis as a James McKeen Cattell Fellow in recognition of his important, groundbreaking contributions to cross-cultural psychology. Triandis' work has addressed fundamental problems of how people in different societies define their self concept and relate to others. His early research established models for preparing workers in different cultures to adjust to other cultures. This work has laid a foundation for training programs on how minority group members adjust to society. His theoretical analyses and empirical work on individualism and collectivism have had an enormous impact on our understanding of attitudes, norms, values, and social behavior. The James McKeen Cattell Fellow Award in Psychology is given to Harry Triandis in recognition of his leadership in the study of cross-cultural psychology and for his seminal contributions that have defined this field of inquiry.

Research Agencies Are A Conventional Presence

Several federal agency representatives visit with APS Board, participate as invited speakers, and assist potential grant seekers at eighth annual APS meeting

As in past years, the 1996 APS convention was the place for representatives of federal research agencies to see and be seen. They gave invited addresses, they visited with the APS Board, and they dispensed valuable advice and information about research funding opportunities to psychologists across a wide range of research interests. But it was a two-way street, with the convention providing federal representatives a chance to learn about a broad array of psychological science.

One of the convention's invited speakers was Anne Petersen, the highest-ranking psychologist in the federal government and an APS Charter Fellow. She spoke about the current scene in Washington from the perspective of her position as the presidentially appointed Deputy Director of the National Science Foundation (NSF). Among other things, Petersen described the crisis that was touched off at the agency last year by congressional attacks on NSF's social and behavioral science programs. Noting that those attacks galvanized the entire scientific community, Petersen also said in that the process of defending against those attacks, the leadership of NSF acquired a new level of understanding and appreciation of these sciences.

Psychologist Norman Anderson was



Peter Muehrer, of the NIMH Division of Epidemiology and Services Research, presents a poster featuring NIMH's Prevention Research Branch.

also an invited speaker at the APS convention. As Director of the Office of Behavioral and Social Sciences Research (OBSSR) at the National Institutes of Health (NIH), Anderson is responsible for coordinating and promoting these sciences throughout NIH. In his address, he talked about the connections between socioeconomic status and health, and more broadly, the need for researchers in all disciplines to recognize that health status is influenced by interacting social, behavioral, psychological, and physiological factors.



NIDA presents a poster featuring its Behavioral Sciences Research Branch. Shown are Jaylan Turkkan, NIDA, Margarite Malakoff, of Harvey Mudd College, and Tim Condon, NIDA.

Anderson saw the convention as a "real educational experience. I went to the meeting with plans to attend as many of the behavioral neuroscience presentations as I could, since this is an area about which I am trying to learn more," he said. "I was pleased with both the quality and the quantity of those talks and the fact that their times usually did not overlap with each other on the schedule."

Personal Contact

Federal agencies also made their institutional presence known via the special and ever-popular Federal Poster Session, a mainstay of the APS meeting.



Sarah Broman, of NINDS, discusses NINDS's federal poster featuring its Developmental Neurology Branch with convention attendee Molly Loch.

It is a "one-stop shopping" event during which APS members can meet the folks—most of whom are psychologists—who oversee the review and funding of behavioral science research and training grants at various institutes within NIH as well as the NSF and other federal research agencies.

During the session, these agency representatives are available to talk one-on-one about their research initiatives as well as about the nuts and bolts of applying for grants at their institutions. The Federal Poster Session was organized by Jaylan Turkkan, a psychologist and chief of the Behavioral Science Research Branch at the National Institute on Drug Abuse (NIDA). "Personal contact is very important," said Turkkan, "because each applicant's needs and situation are unique. Broad announcements from institutes aren't tailored enough for these individual needs."

In addition to NIDA, other agencies participating in the session included the following:

- ◆ THE NATIONAL INSTITUTE ON AGING—the Adult Psychological Development Branch

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- ◆ THE NATIONAL INSTITUTE ON CHILD HEALTH AND HUMAN DEVELOPMENT—the Human Learning and Behavior Branch and the Demographic and Behavioral Sciences Branch
- ◆ THE NATIONAL INSTITUTE ON ALCOHOL ABUSE AND ALCOHOLISM—the Treatment Research Branch
- ◆ THE NATIONAL INSTITUTE OF NEUROLOGICAL DISORDERS AND STROKE—the Developmental Neurology Branch
- ◆ THE NATIONAL INSTITUTE OF MENTAL HEALTH—the Division of Clinical and Treatment Research; the Prevention Research Branch; and the Division of Neuroscience and Behavioral Science, including the Behavioral, Cognitive, and Social Sciences Research Branch
- ◆ THE NATIONAL SCIENCE FOUNDATION—the Social Psychology Program

Open for Business

In addition to the Federal Poster Session, two institutes that are among the largest federal funders of behavioral science research conducted grants workshops specifically targeted to young



NICHHD's Susan Newcomer presents a poster on the Office of Demographic and Behavioral Sciences.

behavioral science investigators. Again, personal contact was a key element.

"It's a chance to meet and talk with the convention participants," said Mary Ellen Oliveri, host of one of the workshops and chief of the Behavioral, Cognitive, and Social Sciences Research Branch in the National Institute of Mental Health (NIMH). "NIMH has been trying hard for the past few years to reach out to newer investigators, and we've found that having opportunities like the workshop at

settings like the APS meeting is a great way to initiate contacts that often lead to more long-term individual consultations.

"Ultimately," said Oliveri, "we think there is research funded that might not have been otherwise, which is a wonderful outcome."

NIDA conducted a similar workshop, titled "Cents and Sensibility: How to Support Your Career in Drug Abuse Research." Geared toward younger investigators, the workshop was an opportunity for scientists to learn about NIDA's scientific priorities and to understand the variety of funding mechanisms that are available to them for every point in their research career. These mechanisms range from pre- and post-doctoral fellowships to small grants such as B/START, to mentored K awards all the way to mechanisms appropriate to senior scientists.

Speaking during the workshop, co-host Turkkan emphasized the need for all



John Allen, of the Division of Clinical and Prevention Research at NIAAA, presents a poster detailing NIAAA's Treatment Research Branch. He is pictured here with Tibor Palfai, of Brown University.



Gina Agostinelli, of the University of California-Berkeley, speaks with Steven Breckler next to the National Science Foundation's poster highlighting NSF funding opportunities.

investigators to follow the *NIH Guide for Grants and Contracts* very closely so they don't miss out on funding opportunities as they arise. Workshop co-host Tim

Condon, NIDA's newly named Associate Director for Science Policy, underscored NIDA's commitment to training young investigators, noting that funding for training at NIDA has increased dramatically in recent years.

"As always, we were delighted to participate in this year's APS convention," said Condon. "Under the leadership of Alan Leshner [director of NIDA], we're broadening the Institute's portfolio in behavioral science, so we see the convention as a great opportunity to expand our efforts to recruit APS members as NIDA grantees in the field of drug abuse and addiction."

"If nothing else, we want APS



Mary Ellen Oliveri, of the Division of Neuroscience and Behavioral Science at NIMH, speaks at a breakfast workshop on grant support for junior investigators.



NIDA sponsored a breakfast workshop on federal funding in which Jaylan Turkkan (right) discussed supporting careers in drug abuse research.

members to know about our expanded portfolio," added Condon. "As I like to put it, NIDA is open for business," he said.

Anderson and Condon were among the senior federal officials who met with the APS Board, which traditionally convenes just prior to the annual meeting. (See story on page 23.)

Both the Federal Poster Session and the grants workshops will be part of the 1997 APS Convention in Washington, DC. Watch upcoming issues of the *Observer* for further information. ◆

Agency Officials Meet With APS Board

As is customary, the APS Board of Directors met for a day and a half prior to the Society's convention in San Francisco, with APS President Richard A. Thompson chairing the meeting. (For a list of Board members and other APS officers, see the *Observer* masthead, p. 2).

The Board reviewed APS's ongoing activities in the areas of publications, membership, convention, administration, and government relations. In addition, they met with senior officials from several federal research agencies. Following is a brief synopsis of those visits.

Behavioral Science at NIH

Norman Anderson, director of the Office of Behavioral and Social Science Research (OBSSR) at the National Institutes of Health (NIH) provided an update on the development of a standardized definition of behavioral and social science at NIH. This



OBSSR Director Norman Anderson brings the APS Board up to date on OBSSR activities.

definition, which is currently being tested on a pilot basis, will be used to estimate the overall NIH portfolio in these areas. Previously, different institutes used different definitions in identifying their behavioral and social science research grants, making it virtually impossible to get an accurate picture of what NIH is really doing in these areas.

Anderson told the Board that some of OBSSR's \$2.3-million budget is used to fund grants that just missed the paylines at individual institutes, but for the most part the Office does not directly fund

research. Instead, the Office is working to increase the visibility of behavioral and social science research at NIH through a variety of activities, including conferences, a special interest group, seminars, and other forums that highlight recent developments across a range of fields within these disciplines.



William Butz of the NSF visits with the APS Board.

Basic Research at NSF

The Board also met with William Butz, director of the Social, Behavioral, and Economic Research (SBER) division of the National

Science Foundation (NSF). Butz described several initiatives of interest to psychology currently underway at NSF, including a major program in the area of cognition. In addition, he reported that the Human Capital Initiative (HCI), a national behavioral science research agenda developed by more than 70 organizations under the auspices of APS, continues to be expanded by NSF, and is receiving favorable attention from the National Science Board, the agency's oversight panel.

In other areas, Butz told the Board that NSF is trying to make its review processes more conducive to interdisciplinary research collaborations; that NSF is looking seriously at the issue of teaching versus research in



Tim Condon, director of science policy at NIDA, presents data showing NIDA's increased commitment to research training and career development.

terms of career rewards; and that young investigators continue to be a high priority at the Foundation.

New Era at NIMH

Jane Steinberg, acting director of the Division of Clinical and Treatment Research at the National Institute of



The APS Board met for a day-and-a-half before the annual meeting began. Pictured are: (top row) Bruce Overmier, John Darley, Lee Sechrest, Richard Weinberg, Milton Hakel, Lorraine Eyde, Elizabeth Capaldi, Paul Thayer, Robert Bjork; (bottom row) Alan Kraut, Sandra Scarr, Richard Thompson, Kay Deaux, Marilynn Brewer; (missing) Stephen Ceci.



Jane Steinberg of NIMH, discusses activities since new NIMH Director Steven Hymen came on board.

Mental Health (NIMH), described a new era of activity since the arrival of NIMH's new director, Steven Hyman. Hyman has been especially involved in a review of the Institute's intramural program and is giving a good deal of attention to the merger of

NIMH's peer review system with that of the larger NIH. She indicated that although he is not a psychologist, Hyman is receptive to behavioral research and that he believes strongly in integrating all areas in addressing mental health and mental illness.

Steinberg also touched on two other items of interest: NIH research applicants will now be limited to three submissions per idea; and an RFA (request for applications) will be issued on informed the consent process in clinical populations (see page 49 this issue).

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Mental Health in 1978, which recommended a specific focus on primary prevention. As she puts it, "From an NIMH research investment of some \$4 million in the early 1980s, along with some hope and optimism undergirded by a determined coalition of advocates, prevention has emerged with a science and a



Beverly Long

constituency to which we can point with pride." Or, as APS Executive Director Alan Kraut puts it, "In the past, prevention was more in the realm of community action than science, but we think now it is time to take prevention more seriously."

A quick look into this area of psychological research reveals that the field is indeed ready to expand. How did this come about?

Why a New NIMH Report Now?

Mrazek explains that the Senate, through the General Accounting Office, for many years had been asking NIMH for an accounting of what was going on in prevention research, and that Congress had never been satisfied with the replies. Finally, the Senate Appropriations Committee, particularly Senator Daniel Inouye (D-HI), had put some specific language in an appropriations bill in 1989 that directed NIMH to commission a study by IOM.

With considerable prodding from the National Prevention Coalition, which includes some 30 organizations (APS and the National Mental Health Association being two of the most active), the Senate's increasingly stronger and more specific directives regarding prevention research have appeared in its annual funding authorization for NIMH. In the last year, in particular, NIMH had been directed to prepare a detailed research plan, responding to the IOM report findings—hence, the 1996 NIMH plan on prevention research.

The NIMH plan calls for specific funds for prevention research centers, including funds for training of investigators. The NIMH is also directed to undertake coordination of whatever scientific research and investigator training is now included in the efforts toward the prevention of mental disorders spread across the 23 federal agencies in 8 departments. NIH Director Harold Varmus is now preparing a plan to begin this coordination effort.

Good Science

The 1994 IOM report was to be a study of what good science was being done and what was known and what was thought to be possible in the area of primary prevention of mental disorders, not in the prevention of relapses, but in

actually staving off mental disorders before the cases arose. Mrazek says that her study committee found plenty of good science to report on in the 1994 IOM book, and preventionists agree there has been much additional progress since then, too. Mrazek emphasizes that many legislators value science highly and would much prefer to fund programs with a good scientific base than pork barrel programs that slip past the peer review process.

The 1994 IOM report emphasized that the way to do prevention research is by the method of risk reduction. While the method of simply trying an intervention and then looking to see whether it causes a reduction in cases of depression some years later inspires hopelessness in a researcher, the approach of targeting specific risk factors for depression, seeing if those factors can be reduced, and then seeing whether those changes in risk factors are followed by a reduction of symptoms over the following years, is a more practical and encouraging way to conduct a study. Mrazek also points out that the wide array of skills needed for this work (including community relations, design of training strategies for presentation by teachers, and statistical methods to assess the outcomes) implies that prevention research is best done in teams. The IOM



Patricia Mrazek

report is written to communicate the whole scope of a rigorously evaluated scientific research program for the benefit of all the many people involved in that team, from the PhD psychologists and psychiatrists, many of whom may have little training in community relations, to the social workers, many of whom have little or no training in research methods and assessment, to the ministers, teachers, principals, and parents, all of whom must be involved in any

meaningful experimental trial of a preventive intervention.

Joseph Coyle, chair of the Consolidated Department of Psychiatry at Harvard Medical School, is a basic neurobiologist who was a member of the IOM panel. The panel included a very broad range of scientific viewpoints, from the social/behavioral to the neurobiological, and they all came to a consensus on a number of scientific opportunities.

Why has prevention research not taken off without a push from Congress? Competition for limited funds, explains Coyle. Current NIH funding is so competitive that few people want to take the risk of applying for grants for long-term high-budget work. Funding seems more certain for short-term, less expensive research. And yet, he points out, hundreds of millions of dollars are being spent on programs (not via peer-reviewed

From an NIMH research investment of some \$4 million in the early 1980s, along with some hope and optimism undergirded by a determined coalition of advocates, prevention has emerged with a science and a constituency to which we can point with pride.

BEVERLY LONG

WORLD FOUNDATION FOR MENTAL HEALTH

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grants) ostensibly designed to reduce the incidence of mental disorders, yet we are clueless as to their efficacy.

Prevention Researchers Are a New Breed

One of the most important chapters in the IOM report describes some of the prevention research that is well-designed and rigorously evaluated, conducted by the new guard of preventionist, who is more scientist than social activist or mere "do-gooder," says Alan Kraut.

Sheppard Kellam of Baltimore is such a scientist. He has been doing prevention research for many years with the school children in his city. His team has developed behavioral interventions, through randomized field trials, to reduce aggressive/disruptive behavior among first graders, an important early risk factor for later delinquency and drug use. By reducing early aggressive behavior in first grade, later antisocial behavior in middle school was prevented in significant numbers of children. Mastery Learning was tested also for its utility in reducing poor academic achievement, an antecedent of depression. Raising reading scores through the Mastery Learning Program reduced the continuity and severity of depression.

Kellam highlights the importance of the proximal-distal or risk reduction strategy for research in developing theoretical and etiological models of development. First come the community epidemiology studies, to define the antecedents for later problem behaviors. Early aggressive behavior, especially when combined with shyness, predicts a range of later problems, including continued aggressive behavior, delinquency, arrests, drug abuse, and teen pregnancy.

The Good Behavior Game aims to reduce early childhood aggressive behavior, and allows an assessment of the conditional probability that, given success in reducing early aggression, there will be a reduction in the sequelae. Not only does this provide a useful way to reduce antisocial behavior, and possibly later crime and delinquency, but it verifies early aggressive behavior's causal role in later behavior problems.

Kellam's recent studies of the crossover between the two interventions find that while reduction of early aggression through the Good Behavior Game has no apparent effect on academic performance or depression, the early improvement of reading skills through the Mastery Learning program decreases not only depression but also subsequent aggression and delinquency.

Quite a few of these programs are demonstrating efficacy comparable to the best work NIH does in terms of new prevention or treatments for other types of disorders.

Structured Skills Training Gets Results

Richard Price is the director of the Michigan Prevention Research Center of the Institute for Social Research, University of Michigan, where an experimental preventive intervention called "The JOBS Project for the Unemployed" has been developed, a program of structured skills training for unemployed persons. It is designed to do the double function of helping the subjects get reemployed and helping them to avoid the depression that often accompanies unemployment. In pilot programs in Michigan, California, and Maryland, Price and associates have developed a structured program of group training, a cognitive and behavioral program that is designed to both increase and exercise the participants' job-searching skills, including the needed skills for dealing with the setbacks and failures, and to increase the participants' control

of their own situation and their awareness of that control. Participants are randomized to the experimental condition, which entails the full series of training group meetings, versus a control condition, in which the individuals receive in the mail a useful but brief package of information on job-hunting skills and strategies.

Participants in the JOBS program get reemployed more quickly and in higher paying jobs than the controls, and they have lower levels of depressive symptoms—even those participants who do not find employment are less depressive, suggesting that the increased feeling of control over their lives that comes from the job-search training and the cognitive-behavioral inoculation against failure does help to compensate for the lack of work, which was originally shown to be the primary risk factor for depressive symptoms in this population.

Zero-Sum? Not!

There is a further issue that can only delight members of Congress from either side of the aisle, and that relates to the question of whether or not job search assistance may be a zero-sum game. What is the net result for the total economy if a program helps an individual to get a job? If that same job could have gone to someone else under another set of circumstances, this jobs program might be merely redistributing unemployment. The program participant hones his or her job-hunting skills, and beats out another applicant who is not in the program. The corollary is that if the program were expanded, it would become less and less effective, because everyone would now have better job hunting skills, and the level of play would be set higher, with the same number of winners and losers as before.

Price addresses this issue in his publications, and when asked about it, he gives the answer that economists have given to this objection. "That would be true if the labor market were

IRWIN SANDLER
ARIZONA STATE UNIVERSITY



Sheppard Kellam

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perfectly efficient already, but there is such a thing as 'frictional unemployment,' in which workers and vacant jobs have trouble finding each other. Because the effect of this program is to increase the efficiency with which people find jobs, as well as to increase the goodness-of-fit between workers and jobs by promoting optimal choices among jobs, the net result should actually be a total increase in employment, and an increase in productivity for the economy as a whole." The demonstration that this is true in this case was beyond the scope of Price's research project, but others (economists) have done studies to show that this can happen, and the hypothesis is very attractive.

Case Reduction

As of 1994, when the IOM report was published, there were no published examples of preventive mental interventions that had demonstrated a reduction in diagnosed cases of a mental disorder. There were significant reductions on several continuous scale measurements of depressive symptomology, and there were significant reductions in investigator-defined numbers of subjects who exceeded some threshold for "extreme or severe symptomology," but now there is a study by Gregory Clarke of the Oregon Health Sciences University, in which a primary intervention to prevent depression has shown a statistically significant reduction of DSM-criteria-diagnosed cases of depression in the experimental group.

Although this represents a milestone of sorts, neither Clarke nor others want to make too much of the distinction between reducing depressive symptomology and reducing the number of individuals who meet the criteria for DSM major depression. In fact, as far as the costs and benefits are concerned, other research has shown that increases in depressive symptomology that do not reach the diagnostic threshold for major depression are associated with greater overuse of medical and social services than can be attributed to increases in cases as such.

Sandra McElhaney is the Director of Prevention at the National Mental Health Association (NMHA), and has served on one of the NIMH committees that have met to define and outline the direction of research. "We have been inching forward," she says, "even in the present budget climate, which is not favorable

to any health and human services program, we are making progress. Congress supports the IOM report, and NIMH is taking the lead in the coordination of prevention research across the many federal agencies. I credit the people of NMHA and APS for their diligent efforts over the years to make this happen."

Saving Government Money

Will all this save the government any money? Each of the reports gives an estimate of the immense costs to society of mental disorders, which affect about one person in five at some time. Not only do we all pay for the disorders themselves through health care and insurance costs, but mental disorders remove workers from the economy, leading to less overall productivity. The argument in favor of an overall benefit to society for any successes in prevention research is excellent.

Nonetheless, those in the field insist on being cautious about making the claim that prevention might be justified on a purely economic basis. "Prevention isn't cheap," says Mrazek, "and few would want to suggest that there would be savings up front." However, at least in the short run, the current strategy of focusing on the role of NIMH as coordinator truly does have dollar-saving potential, because it may enable us to eliminate redundant projects. In addition, Kraut points out that a tremendous amount of money is already going into programs that are supposed to prevent adverse behavioral outcomes in society, without sufficient evidence that those programs are efficacious, or even that those programs are informed by scientific findings. Half of the money spent by the federal government on the prevention of spouse and child abuse, for instance, is spent by the Defense Department, and yet there is virtually no rigorous evaluation of these programs.

The total estimate of expenditures in 1991 by the Department of Health and Human Services for prevention of mental disorders, including alcohol and substance abuse, and without the inclusion of assessment in the programs, came to some \$2 billion. Of that total, only \$20 million (1 percent) was for prevention of the initial manifestation of mental disorders. In that situation, "prevention" meant 99 percent for treatment after

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SPOTLIGHT ON RESEARCH FROM PAGE 13

fort) that Whites were unable to monitor or control. Thus, Whites may intend to convey a positive and friendly attitude to their Black partner and believe that they have succeeded, while in the same interaction the Black partner may be attuned to the negative or mixed-message inadvertently sent by Whites, which produces a very different, potentially conflicting perspective that can contribute to racial tension and distrust.

Reducing Bad Habits

The fact that negative attitudes may exist and be expressed automatically does not mean that racial bias is inevitable or immutable. The work of Patricia Devine suggests that this form of prejudice is like a "bad habit." It is an over learned response that

can be unlearned. As Devine proposes, an important first step is making people aware of discrepancies between their conscious ideals and automatic negative response. "By making these nonconscious negative responses conscious," Dovidio states, "we can take advantage of the genuinely good intentions of aversive racists to motivate them to gain the experiences they need to unlearn one set of responses and learn the new set that they desire."

With the support of a grant from NIMH, Gaertner and Dovidio are investigating how these intergroup experiences can best be structured to produce generalizable and enduring reductions in bias. Dovidio concludes, "Understanding the nature of race relations needs to continue to involve systematic investigation of the perspective of Whites toward Blacks and other racial and ethnic groups, but it also requires a more complete understanding and appreciation of the perspective of these groups that historically have been victimized by prejudice and discrimination." ♦

New Staff at APS ..

APS Welcomes . . . Debbie Smith

As APS's New Director of Membership

APS is pleased to welcome Debbie Smith as the new Membership Director. Debbie will be taking over membership responsibilities from Lauren Butler who has left APS to attend law school at Georgetown University.

Debbie comes to APS after nine years with the American Defense Preparedness Association (ADPA), where she was responsible for membership recruitment and retention. "The experience I have gained from working with an industry that is down-sizing has enabled me to meet many challenges. I look forward to 'growing' the APS membership base."

While at ADPA, Debbie was also responsible for ADPA's annual meeting, which included a black-tie dinner honoring a distinguished individual in the defense industry—previous award winners were former Joint Chief of Staff General Colin Powell and former Secretary of Defense Richard Cheney. "I really enjoyed working with the members at the ADPA annual meeting. The San Francisco APS convention will be a good introduction to APS members."

Debbie's focus at APS will be to continue to increase both new members and APS's enviable 92 percent member renewal rate. The APS computer system and member database will also be central areas of her attention.

A native of northern Virginia, Debbie is very happy to be working in Washington at APS.



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the occurrence of disorder and 1 percent for rigorous prevention intervention research to delay or avoid the disorder altogether. This imbalance in expenditures was not the result of a misrepresentation, but, rather, derived from the lack of consensus as to the definition of "prevention."* The IOM (1994) and NIMH (1996) proposed spending \$50-60 million annually over a period of years to build an effective and efficient prevention role for the mental health system with emphasis on coordination of the fragmented and overlapping field. This latter amount is, as Long characterizes it, "a practical and prudent amount." **Paul M. Rowe**

* The IOM recommended that the term "prevention" be reserved for only those interventions that occur *before* the initial onset of a disorder.

Paul M. Rowe is a freelance science writer based in Washington, DC.

The Editor welcomes your letters

Submit typewritten letters (350 words max.) via postal mail and, if possible, include a computer file on disk (PC/DOS or Apple/Macintosh). Indicate which word processor you used, or, save your file as an ASCII or text file. Or, send your letter via fax (202-783-2083) or email (to Lee Herring, Editor: lherring@aps.washington.dc.us).

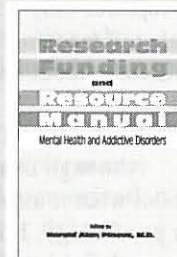
RESEARCH FUNDING AND RESOURCE MANUAL MENTAL HEALTH AND ADDICTIVE DISORDERS

Edited by Harold Alan Pincus, M.D.,
Office of Research, American Psychiatric Association

The *Research Funding and Resource Manual: Mental Health and Addictive Disorders* is a compendium of information on where and how to get funding for mental health and addictive disorders research. This manual contains a comprehensive listing of funding sources available to researchers in psychiatry, psychology, neuroscience, and behavioral sciences. It addresses a broad array of topics to assist investigators and trainees in developing resources to support research projects and career development activities and in responding to science policy issues.

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On Critical Thinking

Jane S. Halonen
Alverno College

Several years ago some teaching colleagues were talking about the real value of teaching psychology students to think critically. After some heated discussion, the last word was had by a colleague from North Carolina. "The real value of being a good critical thinker in psychology is so you won't be a jerk," he said with a smile. That observation remains one of my favorites in justifying why teaching critical thinking skills should be an important goal in psychology. However, I believe it captures only a fraction of the real value of teaching students to think critically about behavior.

What Is Critical Thinking?

Although there is little agreement about what it means to think critically in psychology, I like the following broad definition: *The propensity and skills to engage in activity with reflective skepticism focused on deciding what to believe or do*

Students often arrive at their first introductory course with what they believe is a thorough grasp of how life works. After all, they have been alive for at least 18 years, have witnessed their fair shares of crisis, joy, and tragedy, and have successfully navi-

gated their way into your classroom. These students have had a lot of time to develop their own personal theories about how the world works and most are quite satisfied with the results. They often pride themselves on how good they are with people as well as how astute they are in understanding and explaining the motives of others.

And they think they know what psychology is. Many are surprised—and sometimes disappointed—to discover that psychology is a science, and the rigor of psychological research is a shock. The breadth and depth of psychology feel daunting. Regardless of their sophistication in the discipline, students often are armed with a single strategy to survive the experience: Memorize the book and hope it works out on the exam. In many cases, this strategy will serve them well.

Unfortunately, student exposure to critical thinking skill development may be more accidental than planful on the part of most teachers. Collaboration in my department and with other colleagues over the years has persuaded me that we need to approach critical thinking skills in a purposeful, systematic, and developmental manner from the introductory course through the capstone experience. I propose that we need to teach critical thinking skills in three domains of psychology: practical (the "jerk avoidance" function), theoretical (developing

scientific explanations for behavior), and methodological (testing scientific ideas). I will explore each of these areas and then offer some general suggestions about how psychology teachers can improve their purposeful pursuit of critical thinking objectives.

Practical Domain

Practical critical thinking is often expressed as a long-term, implicit goal of teachers of psychology, even though they may not spend much academic time teaching how to transfer critical thinking skills to make students wise consumers, more careful judges of character, or more cautious interpreters of behavior. Accurate appraisal of behavior is essential, yet few teachers invest time in helping students understand how vulnerable their own interpretations are to error.

Encourage practice in accurate description and interpretation of behavior by presenting students with ambiguous behavior samples. Ask them to distinguish what they observe (What is the *behavior*?) from the inferences they draw from the behavior (What is the *meaning* of the behavior?). I have found that cartoons, such as Simon Bond's *Unspeaking Acts*, can be a good resource for refining observation skills.

Students quickly recognize that crisp behavioral descriptions are typically consistent from observer to observer, but

inferences vary wildly. They recognize that their interpretations are highly personal and sometimes biased by their own values and preferences. As a result of experiencing such strong individual differences in interpretation, students may learn to be appropriately less confident of their immediate conclusions, more tolerant of ambiguity, and more likely to propose alternative explanations. As they acquire a good understanding of scientific procedures, effective control techniques, and legitimate forms of evidence, they may be less likely to fall victim to the multitude of off-base claims about behavior that confront us all. (How many Elvis sightings can be valid in one year?)

Theoretical Domain

Theoretical critical thinking involves helping the student develop an appreciation for scientific explanations of behavior. This means learning not just the content of psychology but how and why psychology is organized into concepts, principles, laws, and theories. Developing theoretical skills begins in the introductory course where the primary critical thinking objective is *understanding and applying concepts* appropriately. For example, when you introduce students to the principles of reinforcement, you can ask them to find examples of the principles in the news or to make up stories that illustrate the principles.

Mid-level courses in the major require more sophistication, moving students beyond application of concepts and principles to *learning and applying theories*. For instance, you can provide a rich case study in abnormal psychology and ask students to make sense of the case from different perspectives, emphasizing theoretical flexibility or accurate use of existing and accepted frameworks in psychology to explain patterns of behavior.

In advanced courses we can justifiably ask students to *evaluate theory*, selecting the most useful or rejecting the least helpful. For example, students can contrast different models to explain drug addiction in physiological psychology. By examining the strengths and weaknesses of existing frameworks, they can select which theories serve best as they

learn to justify their criticisms based on evidence and reason.

Capstone, honors, and graduate courses go beyond theory evaluation to encourage students to *create theory*. Students select a complex question about behavior (for example, identifying mechanisms that underlie autism or language acquisition) and develop their own theory-based explanations for the behavior. This challenge requires them to synthesize and integrate existing theory as well as devise new insights into the behavior.

Methodological Domain

Most departments offer many opportunities for students to develop their methodological critical thinking abilities by applying different research methods in psychology. Beginning students must first learn what the scientific method entails. The next step is to apply their understanding of scientific method by identifying design elements in existing research. For example, any detailed description of an experimental design can help students practice distinguishing the independent from the dependent variable and identifying how researchers controlled for alternative explanations.

The next methodological critical thinking goals include evaluating the quality of existing research design and challenging the conclusions of research findings. Students may need to feel empowered by the teacher to overcome the reverence they sometimes demonstrate for anything in print, including their textbooks. Asking students to do a critical analysis on a fairly sophisticated design may simply be too big a leap for them to make. They are likely to fare better if given examples of bad design so they can build their critical abilities and confidence in order to tackle more sophisticated designs. (Examples of bad design can be found in *The Critical Thinking Companion for Introductory Psychology* or they can be easily constructed with a little time and imagination).

Students will develop and execute their own research designs in their capstone methodology courses. Asking students to conduct their own independent

research, whether a comprehensive survey on parental attitudes, a naturalistic study of museum patrons' behavior, or a well-designed experiment on paired associate learning, prompts students to integrate their critical thinking skills and gives them practice with conventional writing forms in psychology. In evaluating their work I have found it helpful to ask students to identify the strengths and weaknesses of their own work—as an additional opportunity to think critically—before giving them my feedback.

Additional Suggestions

Adopting explicit critical thinking objectives, regardless of the domain of critical thinking, may entail some strategy changes on the part of the teacher.

- ◆ **Introduce psychology as an open-ended, growing enterprise.** Students often think that their entry into the discipline represents an end-point where everything good and true has already been discovered. That conclusion encourages passivity rather than criticality. Point out that research is psychology's way of growing and developing. Each new discovery in psychology represents a potentially elegant act of critical thinking. A lot of room for discovery remains. New ideas will be developed and old conceptions discarded.
- ◆ **Require student performance that goes beyond memorization.** Group work, essays, debates, themes, letters to famous psychologists, journals, current event examples—all of these and more can be used as a means of developing the higher skills involved in critical thinking in psychology. Find faulty cause-effect conclusions in the tabloids (e.g., "Eating broccoli increases your IQ!") and

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have students design studies to confirm or discredit the headline's claims. Ask students to identify what kinds of evidence would warrant belief in commercial claims. Although it is difficult, even well-designed objective test items can capture critical thinking skills so that students are challenged beyond mere repetition and recall.

◆ **Clarify your expectations about performance with explicit, public criteria.**

Devising clear performance criteria for psychology projects will enhance student success. Students often complain that they don't understand "what you want" when you assign work. Performance criteria specify the standards that you will use to evaluate their work. For example, performance criteria for the observation exercise described earlier might include the following: *The student describes behavior accurately; offers inference that is reasonable for the context; and identifies personal factors that might influence inference.* Performance criteria facilitate giving detailed feedback easily and can also promote student self-assessment.

◆ **Label good examples of critical thinking when these occur spontaneously.**

Students may not recognize when they are thinking critically. When you identify examples of good thinking or exploit examples that could be improved, it enhances students' ability to understand. One

of my students made this vivid for me when I commented on the good connection she had made between a course concept and an insight from her literature class, "That is what you mean by critical thinking?" Thereafter I have been careful to label a good critical thinking insight.

◆ **Endorse a questioning attitude.**

Students often assume that if they have questions about their reading, then they are somehow being dishonorable, rude, or stupid. Having discussions early in the course about the role of good questions in enhancing the quality of the subject and expanding the sharpness of the mind may set a more critical stage on which students can play. Model critical thinking from some insights you have had about behavior or from some research you have conducted in the past. Congratulate students who offer good examples of the principles under study. Thank students who ask concept-related questions and describe why you think their questions are good. Leave time and space for more. Your own excitement about critical thinking can be a great incentive for students to seek that excitement.

◆ **Brace yourself.**

When you include more opportunity for student critical thinking in class, there is much more opportunity for the class to go astray. Stepping away from the podium and engaging the students to perform what they know necessitates some loss of control, or at least some enhanced risk. However, the advantage is that no class will ever feel completely predictable,

and this can be a source of stimulation for students and the professor as well.

Resources

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Jane Halonen received her PhD from the University of Wisconsin-Milwaukee in 1980. She is Professor of Psychology at Alverno College in Milwaukee, Wisconsin, where she has served as Chair of Psychology and Dean of the Behavior Sciences Department. Halonen is past president of the Council for Teachers of Undergraduate Psychology. A fellow of APA's Division 2 (Teaching), she has been active on the Committee of Undergraduate Education, helped design the 1991 APA Conference on Undergraduate Educational Quality, and currently serves as a committee member to develop standards for the teaching of high school psychology.

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Or when the obituary on Roger Sperry appeared?

How about when you were featured in the *Observer's* People section?

The **APS World-Wide Web** page now features an Index in which *Observer* issues are organized by subject, title, and date of publication. The index dates back through March 1990 and will be updated annually.



NICHD FROM PAGE 3

infant needs. By continuing to evaluate the social, emotional, cognitive, linguistic, and health development of the children in this study, investigators hope to identify the conditions that predict enhanced or compromised development in relation to family conditions and child care.

Through the HLB, the NICHD also supports an extensive research program in learning disabilities (LD). This research has led to the discovery that reading disability, the most prevalent type of LD, is caused primarily by deficits in a specific language skill called phonological awareness. Through extensive longitudinal research, screening measures have now been developed

that can predict which children in late kindergarten and first grade will have difficulties learning to read. Treatment studies now underway are also demonstrating that reading disability can be prevented and/or remediated if identified at an early stage. An additional finding from this research is that just as many girls as boys are affected by reading disability. Because schools identify males as reading disabled at three to four times the rate of females, however, many girls have been overlooked and have not received the necessary educational services.

Similarly, NICHD's Demographic and Behavioral Sciences Branch (DBSB) supports a wide range of studies of behaviors

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NICHD Projects Whose PIs Are Psychologists

Fiscal Year 1995

NICHD Psychology Grants in FY 1995

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Principal Investigator

Affiliation

Grant Title

BORKOWSKI, JOHN G	UNIV OF NOTRE DAME	PRECURSORS OF RETARDATION IN CHILDREN WITH TEEN MOTHERS
BORKOWSKI, JOHN G	UNIV OF NOTRE DAME	RESEARCH TRAINING IN MENTAL RETARDATION
BRADLEY, ROBERT H	UNIV OF ARKANSAS-LITTLE ROCK	NORMING & VALIDATION OF EARLY ADOLESCENT HOME INVENTORY
BRADLEY, ROBERT H	UNIV OF ARKANSAS-LITTLE ROCK	THE NICHD STUDY OF EARLY CHILD CARE
BROOKS-GUNN, JEANNE	COLUMBIA UNIV TEACHERS COLLEGE	MATERNAL CHARACTERISTICS AND LOW-BIRTHWEIGHT INFANTS
BROOKS-GUNN, JEANNE	COLUMBIA UNIV TEACHERS COLLEGE	CONTEXTUAL, BEHAVIORAL & PHYSIOLOGICAL PROCESSES—GIRLS
BROOKS-GUNN, JEANNE	COLUMBIA UNIV TEACHERS COLLEGE	CHILD WELL-BEING NETWORK CONSORTIUM
BRUNJES, PETER	UNIV OF VIRGINIA CHARLOTTESVILLE	NEUROBIOLOGICAL AND BEHAVIORAL DEVELOPMENT
BUCKELEW, SUSAN P	UNIV OF MISSOURI COLUMBIA	MISSOURI REHABILITATION RESEARCH TRAINING PROGRAM
BUHRMESTER, DUANE P	UNIV OF TEXAS DALLAS	FRIENDSHIP, COMPETENCE, AND ADJUSTMENT IN ADOLESCENCE
BURT, DIANA B	UNIV OF TEXAS HLTH SCI CTR	DEMENTIA IN ADULTS WITH DOWN SYNDROME
CAIRNS, ROBERT B	UNIV OF NORTH CAROLINA CHAPEL HILL	DEVELOPMENT AND SOCIAL ORGANIZATION OF AGGRESSION
CAIRNS, ROBERT B	UNIV OF NORTH CAROLINA CHAPEL HILL	HUMAN DEVELOPMENT—INTERDISCIPLINARY RESEARCH TRAINING
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CHAPMAN, ROBIN S	UNIV OF WISCONSIN MADISON	LANGUAGE DEVELOPMENT IN DOWN SYNDROME CHILDREN
CHEWNING, BETTY A	UNIV OF WISCONSIN MADISON	RURAL NATIVE AMERICANS: A MINORITY YOUTH INTERVENTION
CLARKE-STEWART, K ALISON	UNIV OF CALIFORNIA IRVINE	THE NICHD STUDY OF EARLY CHILD CARE
CLARKSON, MARSHA G	GEORGIA STATE UNIV	AUDITORY SPATIAL PERCEPTION DURING INFANCY
CLIFTON, CHARLES E, JR	UNIV OF MASSACHUSETTS AMHERST	LANGUAGE COMPREHENSION
CLIFTON, RACHEL K	UNIV OF MASSACHUSETTS AMHERST	REACHING AND COGNITION IN INFANCY
COHEN, LESLIE B	UNIV OF TEXAS AUSTIN	INFANT VISUAL INFORMATION PROCESSING
COLOMBO, JOHN	UNIV OF KANSAS LAWRENCE	INDIVIDUAL DIFFERENCES IN INFANT VISUAL PROCESSING
CONNERS, FRANCES	UNIV OF ALABAMA-TUSCALOOSA	PHONOLOGICAL PROCESSING AND MENTAL RETARDATION
COWAN, NELSON	UNIV OF MISSOURI COLUMBIA	THE DEVELOPMENT OF MEMORY FOR SPEECH
COX, DANIEL J	UNIV OF VIRGINIA CHARLOTTESVILLE	PEDIATRIC CONSTIPATION—BEHAVIOR MECHANISMS & TREATMENT
COX, MARTHA J	UNIV OF NORTH CAROLINA CHAPEL HILL	THE NICHD STUDY OF EARLY CHILD CARE
CRANO, WILLIAM D	UNIV OF ARIZONA	HIV PREVENTION IN A MULTICULTURAL CHILDREN'S SAMPLE
ANN C	PENNSYLVANIA STATE-UNIV PARK	PARENTAL WORK, FAMILY DYNAMICS, & ADOLESCENT DEVELOPMENT
CROUTER, ANN C	PENNSYLVANIA STATE-UNIV PARK	GENDER ROLE SOCIALIZATION IN MIDDLE CHILDHOOD
CROWELL, DAVID H	KAPIOLANI MEDICAL CENTER	EVENT RECORDINGS OF HIGH RISK INFANTS ON APNEA MONITORS
CROWLEY, WILLIAM R	UNIV OF TENNESSEE-MEMPHIS	BRAIN MONOAMINES AND LUTEINIZING HORMONE SECRETION
CROWLEY, WILLIAM R	UNIV OF TENNESSEE-MEMPHIS	NEUROCHEMICAL CONTROL OF OXYTOCIN RELEASE
DAVIDSON, ANDREW R	COLUMBIA UNIV NEW YORK	DECISIONS CONCERNING NORPLANT USE AND DISCONTINUATION
DAVIDSON, TERRY L	PURDUE UNIV WEST LAFAYETTE	SIGNALS TO FEED—BIOLOGICAL AND ASSOCIATIVE MECHANISMS
DE LOACHE, JUDY S	UNIV OF ILLINOIS URBANA-CHAMPAIGN	REPRESENTATIONAL FUNCTIONING IN YOUNG CHILDREN
DE VILLIERS, JILL G	SMITH COLLEGE	ACQUISITION OF LANGUAGE FOR MENTAL EVENTS
DECI, EDWARD L	UNIV OF ROCHESTER	THE MOTIVATIONAL BASIS OF CHILDREN'S SELF-REGULATION
DEHART, GANIE B	COLLEGE-GENESE	LINKAGES AND CONTRASTS IN SIBLING AND FRIEND INTERACTION
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DIKMEN, SUREYYA S	UNIV OF WASHINGTON	PSYCHOSOCIAL OUTCOME IN HEAD INJURY
DILLER, LEONARD	NEW YORK UNIV	MULTIDISCIPLINARY MEDICAL REHABILITATION RESEARCH
DODGE, KENNETH A	VANDERBILT UNIV	DEVELOPMENT OF SOCIAL BEHAVIOR
DOLAN, TERENCE R	UNIV OF WISCONSIN MADISON	WISCONSIN CENTER ON MENTAL RETARDATION—CORE SUPPORT

FROM PREVIOUS PAGE

related to fertility and reproductive health. For example, the DBSB supports a number of studies on behavioral risk factors associated with sexually transmitted diseases, including HIV. Among these projects are studies of condom use among both adolescents and adults, studies of the biosocial determinants of sexual behavior and childbearing, and studies of communication between parents and their children about these issues.

Another prime area of concern for the DBSB is the family and how changing family structures affect children, both immediately and in the long term. To clarify these issues, the Branch supported the National Survey of Families and House-

holds, the first nationally representative study of the American family. Cofunded by the NICHD and the National Institute on Aging, this survey has yielded valuable insights into the evolving family structure in this country. Among these findings are that cohabitation may become the norm if current trends continue, that family ties are becoming looser rather than more stable, and that early out-of-wedlock childbearing is related to the experience of family instability and change in childhood and adolescence. With this information as a foundation, current research supported by the DBSB is aimed at understanding the behavior and processes that underlie these changes in the family,

SEE NICHD ON PAGE 41

NICHD Projects Whose PIs Are Psychologists

Fiscal Year 1995

Principal Investigator

Affiliation

Grant Title

NICHD Psychology Grants in FY 1995

Continued on next page

DUBE, WILLIAM V	EUNICE KENNEDY SHRIVER CTR	PROGRAMMING DISCRIMINATION AND ONE-TRIAL LEARNING
EAST, PATRICIA L	UNIV OF CALIFORNIA SAN DIEGO	ONSEQUENCES OF TEENAGE CHILDBEARING FOR SIBLINGS
ECCLES, JACQUELYNNE S	UNIV OF MICHIGAN-ANN ARBOR	ONTOGENY OF SELF AND TASK CONCEPTS AND ACTIVITY CHOICE
ECCLES, JACQUELYNNE S	UNIV OF MICHIGAN-ANN ARBOR	PGC STUDY OF ADOLESCENT DEVELOPMENT IN MULTIPLE CONTEXTS
ECHOLS, CATHARINE H	UNIV OF TEXAS AUSTIN	PROSODIC AND SYNTACTIC CUES IN LANGUAGE ACQUISITION
ECKERMAN, CAROL O	DUKE UNIV	VLBW INFANT—MOTHER MASTERY OF KEY DEVELOPMENTAL TASKS
EIMAS, PETER D	BROWN UNIV	DEVELOPMENTAL STUDIES OF SPEECH PERCEPTION
EIMAS, PETER D	BROWN UNIV	DEVELOPMENT OF COMPLEX CATEGORIES IN INFANTS
EMORY, EUGENE K	EMORY UNIV	BEHAVIORAL PERINATOLOGY
ENDICOTT, JEAN	NEW YORK STATE PSYCH INST	SEVERE PREMENSTRUAL SYNDROMES: RISK/COURSE/MECHANISMS
ENGLER, RANDALL W	UNIV OF SOUTH CAROLINA-COLUMBIA	INDIVIDUAL DIFFERENCES IN WORKING MEMORY
EPSTEIN, LEONARD H	STATE UNIV OF NEW YORK-BUFFALO	FOLLOW-UP OF BEHAVIORAL CHILDHOOD OBESITY TREATMENT
EPSTEIN, LEONARD H	STATE UNIV OF NEW YORK-BUFFALO	EXERCISE IN THE LONG-TERM CONTROL OF CHILDHOOD OBESITY
ERICKSEN, KAREN P	UNIV OF CALIFORNIA DAVIS	SOCIAL AND BEHAVIORAL RISK FACTORS FOR AFRICAN STERILITY
ERKUT, SUMRU	WELLESLEY COLLEGE	NORMATIVE DEVELOPMENT AMONG PUERTO RICAN ADOLESCENTS
ETGEN, ANNE M	YESHIVA UNIV	NEUROENDOCRINE BASES OF REPRODUCTIVE BEHAVIOR
EVANS, RICHARD I	UNIV OF HOUSTON-UNIV PARK	AIDS PREVENTION AMONG MINORITY ADOLESCENTS
EYMAN, RICHARD K	UNIV OF CALIFORNIA RIVERSIDE	LIFE EXPECTANCY OF MENTALLY RETARDED PEOPLE
FAGOT, BEVERLY I	OREGON SOCIAL LEARNING CENTER, INC	PROCESS OF FATHERING—EFFECTS ON HIS CHILD'S COMPETENCE
FIFER, WILLIAM P	NEW YORK STATE PSYCHIATRIC INSTITUTE	PERINATAL ASSESSMENTS IN RISK POPULATIONS
FLAY, BRIAN R	UNIV OF ILLINOIS-CHICAGO	CHICAGO AFRICAN-AMERICAN HEALTH BEHAVIOR PROJECT
FLOYD, FRANK J	UNIV OF NORTH CAROLINA CHAPEL HILL	ADAPTATION IN FAMILIES WITH MENTALLY RETARDED CHILDREN
FLOYD, FRANK J	UNIV OF NORTH CAROLINA CHAPEL HILL	ADAPTATION IN FAMILIES WITH MENTALLY RETARDED CHILDREN
FOORMAN, BARBARA R	UNIV OF HOUSTON-UNIV PARK	EARLY INTERVENTIONS FOR CHILDREN WITH READING PROBLEMS
FOWLER, CAROL A	HASKINS LABORATORIES	NATURE AND ACQUISITION OF THE SPEECH CODE AND READING
FOX, NATHAN A	UNIV OF MARYLAND COLLEGE PK	INFANT COGNITIVE AND EEG DEVELOPMENT—BASIC PROCESSES
FOX, NATHAN A	UNIV OF MARYLAND COLLEGE PK	EEG ASYMMETRY AND SOCIAL BEHAVIOR IN 4 YEAR OLD CHILDREN
FRANCIS, DAVID J	UNIV OF HOUSTON-UNIV PARK	DETECTING READING PROBLEMS BY MODELING INDIVIDUAL GROWTH
GALLIMORE, RONALD G	UNIV OF CALIFORNIA LOS ANGELES	ECOCULTURAL OPPORTUNITY AND FAMILY ACCOMMODATION
GARDNER, JUDITH M	INST FOR BASIC RES IN DEV DISABIL	AROUSAL AND ATTENTION IN HIGH-RISK NEONATES
GARDNER, RICK M	UNIV OF COLORADO-DENVER	DEVELOPMENTAL CHANGES IN BODY IMAGE OF CHILDREN
GEARY, DAVID C	UNIV OF MISSOURI COLUMBIA	NUMERICAL COGNITION AND MATH ACHIEVEMENT
GIBSON, MARIE J	MOUNT SINAI SCHOOL OF MED	PREOPTIC AREA BRAIN GRAFTS AND THE CONTROL OF OVULATION
GLIDDEN, LARAIN M	ST. MARY'S COLLEGE OF MD	ADOPTING RETARDED CHILDREN—FAMILY STRESS AND COPING
GOLDFIELD, EUGENE C	CHILDREN'S HOSPITAL (BOSTON)	ORAL RESPIRATORY COORDINATION IN PRETERM INFANTS
GOLDIN-MEADOW, SUSAN J	UNIV OF CHICAGO	GESTURE-SPEECH MISMATCH AND TRANSITIONS IN LEARNING
GREENOUGH, WILLIAM T	UNIV OF ILLINOIS URBANA-CHAMPAIGN	DEVELOPMENTAL PSYCHOBIOLOGY AND NEUROBIOLOGY
GUNNAR, MEGAN R	UNIV OF MINNESOTA TWIN CITIES	BEHAVIORAL AND HORMONAL RESPONSES TO STRESS IN CHILDREN
GURALNICK, MICHAEL J	UNIV OF WASHINGTON	RESEARCH IN MENTAL RETARDATION AND CHILD DEVELOPMENT
HAINLINE, LOUISE	BROOKLYN COLLEGE	TEMPORAL PROCESSING IN THE READING DISABLED
HALL, WARREN G	DUKE UNIV	ORIGINS AND DEVELOPMENT OF INGESTIVE BEHAVIOR
HARWOOD, ROBIN L	UNIV OF CONNECTICUT STORRS	CULTURE AND ATTACHMENT
HOLCOMB, PHILLIP J	TUFTS UNIV MEDFORD	CROSS-DOMAIN COMPREHENSION PROCESSES
HOPPENBROUWERS, TOKE T	UNIV OF SOUTHERN CALIFORNIA	EVENT RECORDINGS OF HIGH RISK INFANTS ON APNEA MONITORS
HOVELL, MELBOURNE F	SAN DIEGO STATE UNIV	TEACHING YOUTH SOCIAL SKILLS—AN AIDS PREVENTION TRIAL

CONTINUED ON NEXT PAGE

Obituaries

Donald T. Campbell Social Psychologist and Scholar (1916-1996)

Donald T. Campbell died on May 6, 1996, in Bethlehem, Pennsylvania, of complications following surgery. Known throughout the social sciences for his methodological and epistemological contributions, Don Campbell was a charter fellow of APS, a William James Fellow, and a member of the National Academy of Sciences.



His death, just a few months short of his 80th birthday, put a premature close to a distinguished and fruitful scholarly career.

Born in Grass Lake, Michigan, on November 20, 1916, Don Campbell was the son of an agronomist who moved his family first to a cattle ranch in Wyoming and then to California where he became an agricultural extension agent. After completing high school in 1934, Campbell took a year away from scholarly pursuits to work on a turkey ranch in Victorville, California (\$40 a month plus room and board). Having satisfied his family's admonition to get some "life experience," Don began his higher education at San Bernadino Valley Union Junior College and then transferred to the University of California-Berkeley where he graduated at the top of his class (sharing top honors with his sister, Fayette) in 1939. His doctoral studies in Psychology at Berkeley were interrupted by service in the Naval Reserve during World War II, but he returned to Berkeley and completed his PhD there in 1947.

Campbell's first faculty positions were at Ohio State University (1947-1950) and the University of Chicago (1950-1953), but he found his academic home when he accepted a tenured position in the Department of Psychology at Northwestern University in 1953. It was during his 26-year tenure at Northwestern that Don Campbell made his mark on the field of psychology, trained several generations of doctoral students in social psychology, and published the most well-known of his 200+ scholarly papers. During most of that period, Donald Campbell was the social psychology program at Northwestern, and working with him there was a heady experience where tenets of behaviorism and phenomenology, logical positivism, cultural relativity, and sociobiology were open for intellectual discussion and debate. His sometimes intimidating intellect was tempered by a self-deprecating sense of humor and a mentoring style that encouraged exploration, dissent, and independent thinking. Because he did not demand conformity, his influence stemmed from the power of ideas themselves.

Although a social psychologist by disciplinary identification, Don Campbell's field of study was the study of scientific

inquiry itself. The scope of his scientific contributions cannot be represented in any single piece of work, but if one were to trace his influence on the conduct of behavioral science, his methodological treatises on field research and quasi-experimental design would certainly figure most prominently. His 1963 chapter with Julian Stanley on experimental and quasi-experimental designs for field research settings is still in print and among the most cited works in psychology, rivaled perhaps by Campbell and Fiske's (1959) multitrait-multimethod matrix approach to construct validity. Campbell's commitment to convergent validity through multiple methodologies was modeled in his own research efforts, which ranged from experimental studies of perceptual contrast effects to cross-cultural studies of ethnocentrism and intergroup relations. His research experiences included a stint at what he called "veranda anthropology" when he accompanied ethnographer Robert A. LeVine in fieldwork among the Gusii of East Africa in 1964.

Recognizing that the achievements of the behavioral and social sciences lay as much in their methodology as in substance, Donald Campbell consistently and effectively advocated the application of social science methods to social change. His "Reforms as Experiments" (published in 1969) reflected his philosophy of an experimenting society and helped to launch an entire industry of program evaluation research.

Campbell's meta-methodological contributions were just one manifestation of a broader intellectual agenda that underscored all of his work. This was the theme of blind-variation-and-selective-retention as a model for knowledge acquisition at all levels of organization, from biological to social evolution. Through this lens, Campbell revealed the parallels among such apparently diverse processes as visual perception, trial-and-error learning, and the transmission of cultural norms. His penchant for philosophy of science culminated in his work on "evolutionary epistemology," and in most recent years, a focus on the sociology of science. His contributions served to link behavioral science and epistemology so as to enrich both enterprises. On the one side, he taught several generations of social scientists to recognize the epistemological foundations of their methods of inquiry—to understand that empirical research is a way of knowing and not merely a set of procedures. On the other side, he brought the empirical achievements of the behavioral sciences to bear on fundamental philosophical questions, promoting a kind of descriptive epistemology that has gained adherents among philosophers of science worldwide.

Donald Campbell was a master of neologisms. He took impish pride in introducing such awkward concepts and phrases as "entitativity," "heterogeneity of irrelevancies," and "the fishscale model of collective omniscience." (Some of us suspected that this habit was a form of displaced "punsterism.") But despite the grumblings of linguistic purists, Campbellian phrases had an elegant simplicity that captured complex ideas more succinctly and memorably than any pedestrian writing style ever could.

SEE CAMPBELL ON PAGE 42

John Clemans Flanagan Pioneering Psychologist (1916-1996)

John C. Flanagan's more than 60 years of leadership and educational research leave an invaluable legacy to behavioral scientists, especially to those who work in organized settings. He laid plans for and successfully carried out several projects of unprecedented magnitude, often employing newly developed methodology and always aimed directly at the improvement of human performance. His careful planning and continuing insistence on quality performance. His careful planning and continuing insistence on quality performance both of himself and his staff resulted in many usable products and provided excellent training for young researchers.



John was born on January 7, 1906, into what became a family of six children. His mother was a teacher and his father a clergyman whose liberal views did not suit conservative congregations which he severed, so the family relocated often.

An early demonstration of John's powers of persuasion, fueled with his passion to play football, enabled him to get his parents' approval to stay out of school a year in the hops of growing enough during his senior year to make this high school team. During his freshman year in the School of Engineering at the University of Washington, he made his numerals on the freshman team. Because electrical engineering labs conflicted with football practice, John transferred to the School of Education, majoring in physics and minoring in math. His athletic ambition was finally realized as starting quarterback on the Washington varsity in his senior year.

After receiving his BS degree in 1929, he coached a high school football team and taught math. Nourishing his growing interest in measurement, John attended a seminar at Yale during the summer of 1931, led by prominent figures such as E.L. Thorndike and Truman L. Kelley. On return to Seattle, his MA was awarded in 1932 followed by an offer of an assistantship at Harvard from Kelley, under whom he received his PhD in mental measurement in 1934. John got a job at the Cooperative Test Service and also worked on a project for the Army Air Corps. As an interviewer on this project, John hired an Air Corps Captain on leave at the time.

As our entry into the war seemed imminent, the Air Corps began to expand rapidly. John's former employee, Captain Griffiss, was promoted to major and made head of the research division in the Air Force's Medical Corps. He recommended Flanagan as the "practical psychologist" the Air Corps needed to develop a new program of selection and classification that would identify trainees capable of learning to fly. John went on active duty on July 15, 1941, assembled a staff, and directed the

Aviation Psychology program throughout World War II. After the war, five members of his staff later became presidents of the American Psychological Association.

Throughout the program, Colonel Flanagan insisted on careful and comprehensive validation of tests in the classification battery before introduction to the current battery. Most validation used the immediately available criterion: success in training. While such validation studies were routinely made, John himself sought measurable criteria of performance in combat as the ultimate criterion. For this purpose he was allowed to fly several missions over Europe with crews of the Eighth Air Force. Another critical validation effort was made when 1,000 trainees were given the full battery of tests, the scores of which were kept in confidence until the project was over. A clear relationship between "stanine" composite scores and subsequent performance emerged.

The research under Flanagan's direction spanned almost the full range of psychology. After the war, a total of 19 volumes documenting the program's work were printed and distributed by the Government Printing Office, providing a rich source of information on this, the largest psychological program undertaken up to that time.

The success of the Aviation Psychology Program led directly to Flanagan's founding of the American Institutes for Research (AIR) in 1946. He did so with the encouragement and assistance of the University of Pittsburgh, where he had accepted a professorship. He purposefully created AIR as a not-for-profit organization to assure that ". . . its institutional objectives would not be complicated with the incentive for personal profits." His objectives were ". . . to contribute to the science of human behavior and the fuller development and utilization of mankind's capacities and potential." The hallmark of his career was the ability to make ambitious plans and carry them out successfully.

The major expansion of air travel immediately following World War II created a recruiting problem for the airlines. John responded by modifying the procedures used for the Army Air Force to reflect the requirements of the civilian sector and the new aircraft. For more than 20 years afterward, practically all of the major airlines relied on AIR to supply the data essential for the selection of pilots, copilots, and flight engineers.

Beginning in 1915, the National Board of Medical Examiners in Philadelphia had administered. examined to be used in certifying doctors as being qualified to practice medicine. National Board tests were typically administered after the second and fourth years of the medical education program, and a third examination, Part III, was administered after the completion of the first year of residency. In 1959 the Part III examination was based on the observation of each candidate's performance in examining real patients in hospital settings from coast to coast. The National Board has become dismayed with this test's unreliability and turned to AIR for assistance. AIR quickly discovered that there was no precise definition of clinical competence and set out to create one by visiting hospitals and gathering from senior physicians several thousand reports of effective and ineffective medical practice, using

CONTINUED ON NEXT PAGE

FROM PREVIOUS PAGE

Flanagan's critical incident technique. AIR developed specifications for a new test relating test situations to the definition of competence. The National Board has used this model for the development of new Part III examinations since 1960.

In the 1960s, colonialism ended throughout Africa. The new nations had only a few individuals with education sufficient to meet the needs of an independent nation. The United States Agency for International Development established a large number of technical training institutes, but unfortunately, the Agency found that the performance of those selected for training was unsatisfactory. AIR was awarded a contract to solve the problem. The task was to identify—among those individuals who had grown up in a bush environment and could not read or write in any language—those who had the potential to become skilled technicians and possibly climb the ladder to a variety of advanced degrees. AIR's program was successfully implemented in 19 developing countries.

In 1960 Flanagan initiated Project Talent, a massive survey of more than 400,000 high school students throughout the United States.

To follow up on the needs revealed by project Talent, Flanagan developed Project PLAN—Program for Learning in Accordance with Needs, an entire curriculum from grades one through 12 designed to meet the individual needs of all students. This was one of the earliest and most comprehensive individual-

ized computer-assisted learning programs.

Following the PLAN project, Flanagan and his staff used his critical incident method to develop a "Quality of Life" scale that is still used in current research. In fact, the critical incident method has been used by researchers all over the world as a way of getting a sound start on new areas of research.

Among the honors Flanagan received were: Legion of Merit by the Army Air Corps, Raymond F. Longacre Award of the Aero-Medical Association, Edward Lee Thorndike Award of the APA Division of Educational Psychology, 1976 Distinguished Professional Contribution Award of APA, Phi Delta Kappa Award for Outstanding Contributions to Education, Development and Research, ETS Award for Distinguished Service to Measurement; Professional Practice Award of APA's Division of Industrial/Organizational Psychology.

John Flanagan met the objectives he stated, not only in AIR but in his personal life. He made substantial contributions to the science of human behavior and together with the talented staff he attracted to AIR, he improved the functioning of social institutions so that they could better help individuals achieve their personal goals as well as contribute to society.

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NICHD FROM PAGE 33

as well as the consequences for children.

While the majority of the NICHD's behavioral research comes under the purview of the HLB and the DBSB, other branches and centers support such research, as well. The following is a list of these components, as well as a brief sampling of the kinds of research they support:

- ◆ Mental Retardation and Developmental Disabilities Branch, which funds studies on subjects ranging from how families adapt to having mentally retarded children to how people with mental retardation communicate;
- ◆ The National Center for Medical Rehabilitation Research, which is looking at the psychological experience and treatment of disability;
- ◆ The Endocrinology, Nutrition and Growth Branch, which supports studies on behavior associated with the development of obesity in children and adolescents, and the functional consequences of iron deficiency anemia in infancy, among others; and
- ◆ The Pregnancy and Perinatology Branch, which, among other studies, is examining behavioral risk factors for poor pregnancy outcome, as well as women's lifestyles during pregnancy.

Through these and many other behavioral studies, which are too numerous to mention, NICHD-supported investigators are working to understand the complex interplay between health, disease, and behavior. Coupled with basic and clinical investigations into disease and its treatment, the findings from these and future studies on human behavior will help ensure the continued fulfillment of NICHD's mission to promote the health and productivity of the nation's people.

To give you a better sense of the range and specific content of the FY95 psychology grants administered by NICHD, beginning on page 3 are the PI names (alphabetical by last name) along with their institutional affiliation and their grant title(s).

For more information about NICHD's behavioral research programs, contact

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ALEXANDER FROM PAGE 2

infant prone (stomach) sleeping with an increased risk of SIDS, and back or side sleeping with a reduction in risk. Since 1992, when the American Academy of Pediatrics recommended that infants be placed on their back or side to sleep to reduce the incidence of SIDS, the United States has seen a steady decrease in the prevalence of infant prone sleeping. This decrease has been bolstered by the national "Back to Sleep" campaign, launched in 1994 by a coalition of federal agencies, including the NICHD, and by the American Academy of Pediatrics, the SIDS Alliance, and the Association of SIDS Program Professionals, to disseminate the message to parents and caretakers that back or side sleeping reduces the risk of SIDS.

Already, there are signs that the campaign is working. Last year, a national telephone survey of 1,000 night-time caretakers of infants seven months and younger indicated that infant sleeping practice had changed from 70 percent of infants being placed on their stomach (prone) to sleep, to 70 percent being placed on their back or side. There are encouraging signs that SIDS deaths are declining, especially in states that have active 'Back to Sleep' promotional campaigns, and the overall rate is down 30 percent. While these are encouraging signs, much remains to be done. The goal is to get more than 90 percent of infants to be placed to sleep on their back or side by continuing to promote a change in the behavior of parents and care givers.

As these brief examples illustrate, behavioral research plays a pivotal role in NICHD's research portfolio, with benefits for the health and well-being of individuals everywhere. As we find ourselves propelled more and more quickly into the genetics era, however, we must be careful and we must be vigilant. We must be careful to remember that our genes alone do not determine

our health and longevity, but that they work in concert with our psychological makeup and subsequent behavioral choices to do so. And, we must be vigilant to continue the overwhelmingly important research we have already begun on the psychological and behavioral issues related to health and development over the course of the human lifespan. ◆

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CAMPBELL FROM PAGE 38

Campbell closed a chapter in his academic and personal life when he left Northwestern in 1979 to accept a position as New York State Board of Regents Albert Schweitzer Professor at the Maxwell School of Syracuse University.

A few years later (1982) he moved again to become University Professor of Social Relations, Psychology, and Education at Lehigh University, where his second wife, anthropologist Barbara Frankel, was a member of the faculty. At Lehigh he had the opportunity to indulge his expansive intellectual interests without the constraints of disciplinary boundaries.

On the occasion of his "quasi-retirement" from Lehigh in 1994, at the age of 77, a banquet in his honor included colleagues from psychology, biology, philosophy, sociology, education, anthropology, and law—many of whom had been co-teachers or co-authors in interdisciplinary ventures. The occasion was a fitting tribute to Don Campbell's intellectual breadth and scope of contribution.

In addition to his election to the National Academy and to Fellow status in the American Academy of Arts and Sciences in

1973, Campbell's many honors included APA's Distinguished Scientific Contribution Award, the Kurt Lewin Memorial Award of the Society for the Psychological Study of Social Issues, the Distinguished Scientist Award of the Society of Experimental Social Psychology, and the William James Lectureship at Harvard University. Another measure of the esteem and admiration of his colleagues is those who have dedicated books to him (17 such dedications at last count). Campbell also received honorary doctorates from the University of Michigan, University of Chicago, University of Southern California, Northwestern University, and University of Oslo, among others. Memorial awards and fellowships in Donald Campbell's honor have been established by the Society for Personality and Social Psychology, the Policy Studies Organization, Lehigh University Department of Sociology and Anthropology, and the Center for Advanced Study in the Behavioral Sciences.

Don Campbell's awesome intellect was matched by the size of his heart. He inspired both love and respect from students and colleagues throughout the world. His presence will be greatly missed, but his influence will continue for a long time to come.

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BOARD FROM PAGE 23

NIDA

Tim Condon, Associate Director for Science Policy of the National Institute on Drug Abuse (NIDA), described several behavioral science-related activities that are taking place under the leadership of Director Alan Leshner, who he noted is the first psychologist to head one of the NIH Institutes. NIDA has launched a B/START (Behavioral Science Track Award for Rapid Transition) program of small grants for young investigators, and a new behavioral science research branch has been created and is spearheading the Institute's efforts broaden its behavioral science

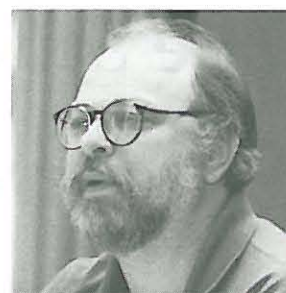
portfolio to attract new perspectives to drug abuse research.

Condon described NIDA's behavioral therapies initiative, which is a large, clinical trial-like effort to assess the effectiveness of various therapies in treating drug abuse and addiction.

He also told the Board about NIDA's emphasis on research training, noting that training is growing as a percentage of the Institute's budget.

Condon closed by telling the Board about NIDA's efforts to disseminate its research and asked the Board to help "spread the word" to researchers, policymakers, and the general public about NIDA's scientific message, which is that drug abuse and addiction are health

Sandra Scarr took over the reins as APS President, Kay Deaux became President-Elect, and the terms of Past-President Marilynn



APS Convention Program Chair Joseph Steinmetz addresses the APS Board.

Brewer, Secretary Betty Capaldi, and Board Member Richard Weinberg expired.

In addition, Milt Hakel, chair of the Human Capital Initiative Coordinating Com-mittee has been appointed by Scarr to serve as APS Secretary and Paul Thayer will continue as APS Treasurer.

NIH FROM PAGE 6

committee also addressed the need to link basic and clinical research by encouraging NIMH to build a generation of basic behavioral researchers who are sensitive to clinical issues. (Copies of the HCI report are available from APS.)

Treatment Matching at NIAAA

NIAAA has undertaken a large patient-treatment initiative, Project MATCH, which has enormous implications for the effectiveness of behavioral therapies aimed at alcohol abuse. The House committee expressed interest in this project and requested a report on the results, which are expected out shortly.

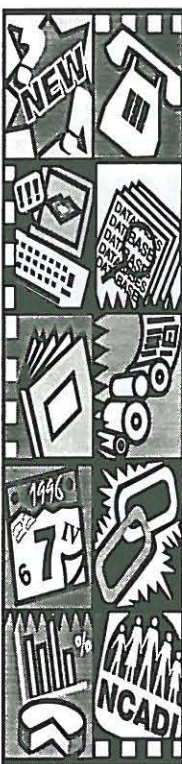
Neurology, CDC

On the heels of our May/June *Observer* featuring behavioral research at the National Institute on Neurological Disorders and Stroke (NINDS), the House Committee encouraged NINDS to better understand the role of behavior in diseases and injuries of the brain.

The House Committee also noted the importance of behavioral science at the Centers for Disease Control and Prevention (CDC), which has been increasingly interested in psychology and other areas of behavioral and social science research. Specifically, the committee commended CDC's expanded efforts in behavioral and social sciences research, and expressed the view that these are

important parts of the CDC mission. A status report on CDC's efforts in these areas was also requested.

The excerpts from the report accompany this article. Don't wait for the movie—read them now. It's not your typical summer fare (unless you're a die-hard wonk), but we guarantee it will leave you anxiously awaiting the sequel, due out in the Senate this fall. S.B.



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The Student Notebook — Rodolpho Mendoza-Denton - Editor

Student Award Winners for 1996

Research Competition

One of the most important goals of the American Psychological Society's Student Caucus (APSSC) is to promote and acknowledge outstanding student research.

Each year, the APSSC holds a nation-wide Student Research Competition for APS student affiliates and selects up to four psychology students, three graduate and one undergraduate, to receive the awards.

The winners present their work at the APSSC Research Symposium during the APS convention. In addition, the APSSC Small Grant Fund (SGF) gives out a number of small awards each year to selected APS student affiliates.

This year's APSSC Student Research Symposium was organized by Aram Packlaian, APSSC Graduate Advocate, from the University of Houston-Clear Lake. Kay Deaux, APS President-Elect, from the City University of New York, chaired the symposium. The three graduate students selected as winners of this year's Student Research Competition were:

- ◆ **Jun Saiki**, from UCLA, (first-place winner): *Spatial Relations Are Less Orientation-Sensitive Between Connected Parts Than Separated Parts.*
- ◆ **Lisa A. Marsch**, from Towson State University, (second-place winner): *The Efficacy of Methadone Maintenance Intervention in Opiate Substance Abuse: A Meta Analysis.*
- ◆ **Nancy Puccinelli**, from Harvard University, (third-place winner): *Implicit Causality and Gender in Language.*

The winning research reflected a wide variety of topics and methodologies. Each of the Research Competition winners

presented his/her work at the symposium, and was presented with an award of \$250 by Deaux and Packlaian during the symposium.



Student award winners are honored at the Student Research Symposium. (Left to right): APS President Richard Thompson, Jun Saki, Nancy Puccinelli, Aram Packlaian, Deana Julka, Lisa Marsch, and APS President-Elect Kay Deaux.

Small Grant Competition

The 1996 APSSC Small Grant Fund Awards were also presented at the APSSC Student Research Symposium. This year's winners were:

- ◆ **Patricia A. Graczyk**, Northern Illinois University
- ◆ **Carey L. Peters**, University of Tennessee
- ◆ **Kristen Coppola**, Kent State University
- ◆ **Deana L. Julka**, University of Notre Dame
- ◆ **Heather Millette**, Wheaton College
- ◆ **Kirsten Wolfe**, Washburn University

All submissions for the Student Research Competition and the Small Grant Fund Competition were reviewed by qualified affiliates of APS. The criteria used in reviewing the submissions included:

- ◆ Potential to advance the field of psychology;
- ◆ Importance and/or relevance of the problem;
- ◆ Feasibility of the study;
- ◆ Originality of approach to the problem;
- ◆ Theoretical framework and significant objectives;
- ◆ Proposed methodology, controls, and sampling procedures;
- ◆ Quality of the writing; and
- ◆ Completeness of the proposal.

The APSSC Executive Council wishes to extend its appreciation to everyone who applied, reviewed, and assisted in making this year's Research Competition, Small Grant Fund, and Student Research Symposium tremendous successes.

We congratulate all winners and encourage submissions for next year's competition. Undergraduates are especially encouraged to submit their work! Look for details in upcoming issues of your Student Notebook, or send mail to Susan Perry, this year's Graduate Advocate, at sperry1@phoenix.kent.edu.



The APSSC Student Board held a business meeting at the annual convention. Pictured are (front row, left to right): Karen Hoff, new APSSC President Nikki Scarberry, Past-President Chris Ratcliff, Steve Fiore; (back row) Graduate Advocate Susan Perry, Student Notebook Editor Rodolpho Mendoza-Denton, Aram Packlaian, Undergraduate Advocate David Bohn, Communications Director John Jewell, and Volunteer Coordinator Deana Julka.

So, We're Ready for Jobs in Academia . . .

(How do you secure an academic position in a field like psychology in which there are so many qualified individuals? This question is doubtlessly on the minds of the many students about to cross over into the working world. To address this, the *Student Notebook* will feature a series of articles on the process involved in successfully applying for and securing a position within academia. This month's piece, by Mitchell M. Metzger, a student embarking on his own job search, discusses the steps involved in beginning a job search. *Editor*)

Mitchell M. Metzger

In the field of psychology it may seem especially daunting to make the transition into the working world after having spent a significant part of your adult life as a student. And while your job search, like everyone's, is individual to your needs and talents, there are thousands of students all over the world also entering the applicant pool. In light of this, it is important to have a clear vision of the scope of your search and to create a first-rate application.

Though it sounds elementary, the first step in searching for a position after graduate school is to identify the type of job that would satisfy your professional needs. If you are unsure of this, picture where you would like to be five to 10 years from now, and you may get a feel for the direction in which you need to point yourself. This is not an easy choice for some, and you may find yourself struggling with this decision, but it is something that you need to do in order to tailor your search to positions that are relevant to your needs.

If you are leaving graduate school with a doctorate in experimental psychology (like myself), there is more than one option for employment: research-only positions, teaching-only positions, and positions that give you the opportunity to pursue both. I have been fortunate enough to get a taste of both teaching and research during graduate school, and the choice that I have made is to apply to institutions where I would be given the opportunity to be active in both domains.

One of the hardest things to determine in the search process is how broad or narrow your approach should be in applying for positions. Two pitfalls to avoid are the "shotgun" and "tunnel

vision" approaches. The shotgun approach is one in which you make the mistake of applying anywhere and everywhere, no matter how tangentially related the position. While, with the tunnel vision approach, you rigidly consider only one specific subject area in which to work or only one geographic region where you would like to be and avoid considering other options.

If your focus is too broad, you may be interviewing for positions at places where you would never think of relocating, or you may be wasting a search committee's time if they are considering you for a position for which you have little or no interest. Like-wise, if your search is too narrow, you may miss out on a position that may not be exactly what you are looking for but which would be a great job nonetheless. While finding a happy medium between these two approaches is best, it is not necessarily an easy thing to do. It requires a lot of thought, research, and consideration.

Brems, Lampman, and Johnson (1995) recently published a report that dealt with preparing applications for academic positions, and I encourage anyone applying (or getting ready to apply) for professorial positions to read this article. Their study was based on data collected from applicants for a position at the University of Alaska-Anchorage, and the results of their study are quite surprising.

Brems, et al. reported that there was a "grave problem with regard to the appropriateness and completeness of academic job positions" (p. 535). This implies that the problem was not so much in the *qualifications* of the individuals

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Each Executive Council member (see below) welcomes students and others to contact them about any concerns relevant to the member's respective office.

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STUDENT NOTEBOOK CONTINUED

STUDENT NOTEBOOK CONTINUED

who were applying for the positions but with the *presentation* of materials to the search committee. For example, less than 50 percent of the applicants provided teaching evaluations, and only 56 percent provided three letters of recommendation (20 percent provided no letters at all). Additionally, only 56 percent of those applying reported the courses they were interested in teaching, and 45 percent of applicants mentioned their research interests. Clearly, when applying for a position in a field where there are so many competitive applicants, you need to include any and all information that would help the search committee better understand your own qualifications.

Equally important to the content of the application is the quality of how the content is showcased. Brems et al. reported that they received applications that had typographical errors, poor grammar, and handwritten cover letters. There were even some

cover letters that were addressed to the wrong university! Based on this information, here's a good guideline to follow: double check everything before you put it in the mailbox, and then go back and double check it again. It is also helpful to have someone else review your application materials.

The last section of the Brems et al. report is a list of suggestions and guidelines that you may find helpful in preparing your applications. While there are some valuable suggestions and tips in this section, keep in mind that different institutions will have different requirements and applications should be tailored to those requirements. (For another good article on preparing students for post-graduate careers, see Fernald, 1995).

In summary, give serious thought to the direction of your budding career and gear your applications toward institutions that will meet your needs and expectations. While applying for an academic

position may seem to be an overwhelming process, it is important to take the time to identify just what kind of job you want, to clearly outline your qualifications, and to let each institution know that you are serious about its position opening.

References

- Brems, C., Lampman, C., & Johnson, M.E. (1995). Preparation of applications for academic positions in psychology. *American Psychologist*, 50(7), 533-537.
- Fernald, P.S. (1995). Preparing psychology graduate students for the professorate. *American Psychologist*, 50(6), 421-427.

In the next Student Notebook, Mitchell discusses the interview process, and the results of his own job search. In the meantime, Mitchell can be reached via email at: mmetzger@kentvm.kent.edu

APS STUDENT AFFILIATES: EXPRESS YOURSELF

The APS Student Notebook is *your* space; take advantage of it! We are always on the lookout for contributions from student affiliates: articles (500-600 words), letters to the editor, even real-life dramas. Through the Student Notebook you can share your thoughts with other students around the nation. This issue's assignment: The Eighth Annual APS Convention as Seen Through a Student's Eyes. Tell us what you thought and what you experienced at the meeting. Send your draft contribution to:

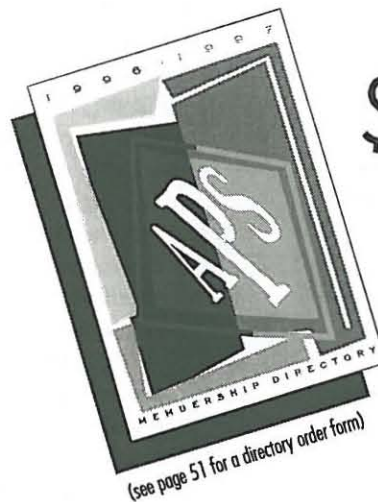
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Organizational Profile

Society for Human Performance in Extreme Environments

Origins and Purpose

The Society for Human Performance in Extreme Environments (HPEE) has been created to unite, support, and display scientific efforts aimed towards enhancing human behavior and performance in all complex, stressed, and challenging environments. Among such environments are those in which conditions require full utilization of human abilities and performance. Research pertaining to maximizing human behavior and performance in any of these environments can enhance our understanding of the critical human adaptation issues inherent in all such environments. While forums exist in which emphasis is placed on the engineering and physiological aspects of human adaptation to challenging environments, no such forum has existed in which the emphasis is on the behavioral, sociological, and the human-technology and environmental interface aspects of human performance. HPEE aims to serve as this forum.

Membership

Membership is comprised of an interdisciplinary group of scientists, researchers, and other professionals from NASA, industry, the armed forces, and academic institutions. HPEE invites those with demonstrated contributions or interests in its purpose to serve as contributing members. Members receive the society's publication, *Human Performance in Extreme Environments* and are included in a comprehensive annual membership directory. Annual dues are \$35 for professionals, \$15 for students.

The "Organizational Profile," a regular feature of the *APS Observer*, informs the research community about organizations devoted to serving psychological scientists and academics. It is difficult for anyone to keep abreast of the various organizations of potential personal interest. This section should help in that task. The Editor welcomes your suggestions as to organizations warranting coverage.

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BACKGROUND

Advances in science and technology during the few years preceding the third millennium have truly entered humankind into a new age of exploration and challenge. This exploration has allowed us to grasp the heavens and to dive the depths, and consequently, to challenge the limits of our human abilities. As we now stand on the threshold of extended duration spaceflight missions with multicultural crews, at no other time will our need for understanding human psychological, cognitive, and sociological abilities and limitations be more crucial. Critical incidents relating specifically to behavioral maladaptation and human factors issues have jeopardized numerous missions. Research pertaining to behavioral adaptation to a variety of stressed and extreme environments, ranging from arctic and underwater exploration to prisoner-of-war situations and field combat, to test-taking in stressed conditions will aid in our understanding of the performance problems inherent in all such environments.

While research in these areas exists, it is for the most part everywhere and nowhere. No one forum exists where behavioral and stress research, extending throughout all challenging environments, is brought together and tied into one uniform effort directed towards maximizing human performance. The Society for Human Performance in Extreme Environments will serve as that forum.

To ensure our continuing presence in these and other extreme environments, efforts must be taken towards understanding and facilitating human behavioral adaptation to the conditions inherent in such environments. The time for such efforts is now. HPEE invites those with demonstrated contributions or interests related to incorporating human to stressed and extreme environments to serve as contributing members.

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