



AMERICAN
PSYCHOLOGICAL
ASSOCIATION

PSYCHOLOGICAL SCIENCE AGENDA

OCTOBER 2003. VOLUME 16. NUMBER 5

Violent Video Games: Myths, Facts, and Unanswered Questions

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Craig A. Anderson received his PhD in psychology from Stanford University in 1980. He has been a faculty member at Rice University (1980-1988), Ohio State University (visiting, 1984-1985), and the University of Missouri-Columbia (1988-1999). He joined Iowa State University in 1999 as Professor and Chair of the Department of Psychology. He has received teaching awards at both the graduate and undergraduate levels, and has been awarded "Fellow" status by the American Psychological Society and the American Psychological Association. He is currently on the Executive Council of the International Society for Research on Aggression. His research on attribution theory, depression, social judgment, co variation detection, biases, and human aggression has been published in top social, personality, and cognitive, journals. His recent focus on violent video games has led to U.S. Senate testimony, addresses to and consultations with numerous scientific, governmental, and public policy groups worldwide, public policy research awards, and articles and stories in top science news outlets. His published works can be found at his web site.

After 40+ years of research, one might think that debate about media violence effects would be over. An historical examination of the research reveals that debate concerning whether such exposure is a significant risk factor for aggressive and violent behavior should have been over years ago (Bushman & Anderson, 2001). Four types of media violence studies provide converging evidence of such effects: laboratory experiments, field experiments, cross-sectional correlation studies, and longitudinal studies (Anderson & Bushman, 2002a; Bushman & Huesmann, 2000). But the development of a new genre—electronic video games—reinvigorated the debate.

Two features of video games fuel renewed interest by researchers, public policy makers, and the general public. First, the active role required by video games is a double-edged sword. It helps educational video games be excellent teaching tools for motivational and learning process reasons. But, it also may make violent video games even more hazardous than violent television or cinema. Second, the arrival of a new generation of ultraviolent video games beginning in the early 1990s and continuing unabated to the present resulted in large numbers of children and youths actively participating in entertainment violence that went way beyond anything available to them on television or in movies. Recent video games reward players for killing innocent bystanders, police, and prostitutes, using a wide range of weapons including guns, knives, flame throwers, swords, baseball bats, cars, hands, and feet. Some include cut scenes (i.e., brief movie clips supposedly designed to move the story forward) of strippers. In some, the player assumes the role of hero, whereas in others the player is a criminal.

The new debate frequently generates more heat than light. Many criticisms are simply recycled myths from earlier media violence debates, myths that have been repeatedly debunked on theoretical and empirical grounds. Valid weaknesses have also been identified (and often corrected) by media violence researchers themselves. Although the violent video game literature is still relatively new and small, we have learned a lot about their effects and have successfully answered several key questions. So, what is myth and what do we know?

Myths and Facts

Myth 1. Violent video game research has yielded very mixed results.

Facts: Some studies have yielded nonsignificant video game effects, just as some smoking studies failed to find a significant link to lung cancer. But when one combines all relevant empirical studies using meta-analytic techniques, five separate effects emerge with considerable consistency. Violent video games are significantly associated with: increased aggressive behavior, thoughts, and affect; increased physiological arousal; and

decreased prosocial (helping) behavior. Average effect sizes for experimental studies (which help establish causality) and correlational studies (which allow examination of serious violent behavior) appear comparable (Anderson & Bushman, 2001).

Myth 2. The studies that find significant effects are the weakest methodologically.

Facts: Methodologically stronger studies have yielded the largest effects (Anderson, in press). Thus, earlier effect size estimates —based on all video game studies— probably underestimate the actual effect sizes.

Myth 3. Laboratory experiments are irrelevant (trivial measures, demand characteristics, lack external validity).

Facts: Arguments against laboratory experiments in behavioral sciences have been successfully debunked many times by numerous researchers over the years. Specific examinations of such issues in the aggression domain have consistently found evidence of high external validity. For example, variables known to influence real world aggression and violence have the same effects on laboratory measures of aggression (Anderson & Bushman, 1997).

Myth 4. Field experiments are irrelevant (aggression measures based either on direct imitation of video game behaviors (e.g., karate kicks) or are normal play behaviors.

Facts: Some field experiments have used behaviors such as biting, pinching, hitting, pushing, and pulling hair, behaviors that were not modeled in the game. The fact that these aggressive behaviors occur in natural environments does not make them "normal" play behavior, but it does increase the face validity (and some would argue the external validity) of the measures.

Myth 5. Correlational studies are irrelevant.

Facts: The overly simplistic mantra, "Correlation is not causation," is useful when teaching introductory students the risks in too-readily drawing causal conclusions from a

simple empirical correlation between two measured variables. However, correlational studies are routinely used in modern science to test theories that are inherently causal. Whole scientific fields are based on correlational data (e.g., astronomy). Well conducted correlational studies provide opportunities for theory falsification. They allow examination of serious acts of aggression that would be unethical to study in experimental contexts. They allow for statistical controls of plausible alternative explanations.

Myth 6: There are no studies linking violent video game play to serious aggression.

Facts: High levels of violent video game exposure have been linked to delinquency, fighting at school and during free play periods, and violent criminal behavior (e.g., self-reported assault, robbery).

Myth 7: Violent video games affect only a small fraction of players.

Facts: Though there are good theoretical reasons to expect some populations to be more susceptible to violent video game effects than others, the research literature has not yet substantiated this. That is, there is not consistent evidence for the claim that younger children are more negatively affected than adolescents or young adults or that males are more affected than females. There is some evidence that highly aggressive individuals are more affected than nonaggressive individuals, but this finding does not consistently occur. Even nonaggressive individuals are consistently affected by brief exposures. Further research will likely find some significant moderators of violent video game effects, because the much larger research literature on television violence has found such effects and the underlying processes are the same. However, even that larger literature has not identified a sizeable population that is totally immune to negative effects of media violence.

Myth 8. Unrealistic video game violence is completely safe for adolescents and older youths.

Facts: Cartoonish and fantasy violence is often perceived (incorrectly) by parents and public policy makers as safe even for children. However, experimental studies with college students have consistently found increased aggression after exposure to clearly unrealistic and fantasy violent video games. Indeed, at least one recent study found significant increases in aggression by college students after playing E-rated (suitable for everyone) violent video games.

Myth 9. The effects of violent video games are trivially small.

Facts: Meta-analyses reveal that violent video game effect sizes are larger than the effect of second hand tobacco smoke on lung cancer, the effect of lead exposure to I.Q. scores in children, and calcium intake on bone mass. Furthermore, the fact that so many youths are exposed to such high levels of video game violence further increases the societal costs of this risk factor (Rosenthal, 1986).

Myth 10. Arousal, not violent content, accounts for video game induced increases in aggression.

Facts: Arousal cannot explain the results of most correlational studies because the measured aggression did not occur immediately after the violent video games were played. Furthermore, several experimental studies have controlled potential arousal effects, and still yielded more aggression by those who played the violent game.

Myth 11. If violent video games cause increases in aggression, violent crime rates in the U.S. would be increasing instead of decreasing.

Facts: Three assumptions must all be true for this myth to be valid: (a) exposure to violent media (including video games) is increasing; (b) youth violent crime rates are decreasing; (c) video game violence is the only (or the primary) factor contributing to societal violence. The first assumption is probably true. The second is not true, as

reported by the 2001 Report of the Surgeon General on Youth Violence (Figure 2-7, p. 25). The third is clearly untrue. Media violence is only one of many factors that contribute to societal violence and is certainly not the most important one. Media violence researchers have repeatedly noted this.

Theory

One frequently overlooked factor in this debate is the role of scientific theory. Pure empirical facts often have relatively little meaning and are seldom convincing. When those same facts fit a broader theory, especially one that has been tested in other contexts, those facts become more understandable and convincing. Recent years have seen considerable progress in basic theoretical models of human aggression (for recent integrations see Anderson & Bushman, 2002b; Anderson & Huesmann, in press; Anderson & Carnagey, in press).

Most such models take a social cognitive view of human aggression, integrating social learning theory, advances in cognitive psychology, script theory, developmental theories, and biological influences. Using such general models, media violence scholars now have a clear picture of how media violence increases aggression in short and long term contexts. Immediately after exposure to media violence, there is an increase in aggressive behavior tendencies because of several factors. 1. Aggressive thoughts increase, which in turn increase the likelihood that a mild or ambiguous provocation will be interpreted in a hostile fashion. 2. Aggressive affect increases. 3. General arousal (e.g., heart rate) increases, which tends to increase the dominant behavioral tendency. 4. Direct imitation of recently observed aggressive behaviors sometimes occurs.

Repeated media violence exposure increases aggression across the lifespan because of several related factors. 1. It creates more positive attitudes, beliefs, and expectations regarding use of aggressive solutions. 2. It creates aggressive behavioral scripts and makes them more cognitively accessible. 3. It decreases the accessibility of nonviolent

scripts. 4. It decreases the normal negative emotional reactions to conflict, aggression, and violence.

Unanswered Questions

Several major gaps remain in the violent video game literature. One especially large gap is the lack of longitudinal studies testing the link between habitual violent video game exposure and later aggression, while controlling for earlier levels of aggression and other risk factors. Indeed, of the four major types of empirical studies mentioned earlier, this is the only type missing. There are such studies focusing on television violence but none on video games.

Another gap concerns potential differences in effect sizes of television versus video game violence. There are theoretical reasons to believe that violent video game effects may prove larger, primarily because of the active and repetitive learning aspects of video games. However, this is a very difficult question to investigate, especially with experimental designs. How does one select violent video game and television stimuli that are matched on other dimensions? On what dimensions should they be equivalent? Number of bodies? Amount of blood and gore? Realism of the images? There are a couple of unpublished correlational studies that have compared the effects of television and video game violence on aggression, using comparable measures of violence exposure. Both yielded results suggesting a larger effect of video game violence. But the issue is not settled.

Finally, more research is needed to: (a) refine emerging general models of human aggression; (b) delineate the processes underlying short and long term media violence effects; (c) broaden these models to encompass aggression at the level of subcultures and nations. Several different research groups around the world are working on these various issues.

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How Many Psychology Majors Does it Take to Produce an Informed Public?

by Kurt Salzinger, Executive Director for Science

According to a recent article in the Chronicle of Higher Education, some 73,534 students in the United States received bachelor's degrees in psychology in academic year 2000 – 2001 (the last year on which statistics were available). Assuming that the graduating students live until age 71 (50 years past graduation), we should have accumulated 50 times 73,534, or 3,676,700 adults with knowledge of psychology. The most recent estimate is that some 8 million high school students have taken at least one course in psychology in the past ten years. I have not mentioned how many college students have taken psychology courses without majoring in it, but there are approximately 45 million people alive who have attained a bachelor's degree as of 2000 (Chronicle of Higher Education, Almanac Issue, August 29, 2003). We know that almost everybody in college takes a psychology course but let us be ultra-conservative and estimate that only 60 percent do so, and we arrive at 27 million adults who had at least one psychology course. Shouldn't that produce many people informed about psychology?

Yet what evidence is there that we have in fact educated these people so that they can distinguish a stimulus from a stimulant, a behavioral fact from an astrological invention, an illusion from a delusion, biological extinction from behavioral extinction, a psychiatrist from a psychologist from a salesperson, a psychological practitioner from a psychological scientist? How many have learned when we speak of psychological motivation, psychological needs, cognition, or bias that we are not necessarily speaking of psychopathology? Discussions by educated members of our society, or even by our colleagues in science or art are not very encouraging in this respect.

If the problem is one of poor teaching, we have experts in this area and ought to be able to improve it; if this is a matter of forgetting, then we surely know about memory, having studied it from the beginning of psychology. As those of you who have been reading my column know, I have consistently said that we need to communicate better and to greater effect if we are going to be able to influence people's behavior sufficiently to consider our science. Our web page www.apa.org/science shows that we have been working on bringing our knowledge to 8th graders and above by providing what we call Exploring Behavior Week. Brett Pelham, our senior scientist, has been improving the materials that can be used by graduate students and others willing to teach about the science of psychology. I continue to urge you to write op ed pieces to demonstrate how psychology is a science and/or how that science can be used to improve life. Our Public Policy Office is constantly working to educate our various government agencies of the wisdom of heeding what psychologists have to say. I have started a listserv, ONEBOOKONEPSYCHOLOGY, whose purpose it is to get us to talk to one another within psychology so that we present what we do in a more coherent and united fashion. All of this is found on our science web page.

But I believe we have to do more. Those in Academia must invite colleagues to their laboratories; they and other researchers must volunteer to give lectures to clubs both in high schools and in their own college and university, at museums and other public venues. I believe also that we must ask ourselves how much our students have learned when they get their bachelor degrees. Should we consider a booster session or two for our students at the end of their college career and not just for our majors but even for those who took but one or several psychology courses? Perhaps we should follow up our students to determine not only what fields they ultimately have gone into (with their uncertain knowledge of psychology) but also how much they recall of what we have taught them. We ought to consider summer school booster courses made available in continuing education programs.

It is not enough for us to complain about how little the public knows of the science of psychology. We must all contribute toward the end of educating the public. Any of the techniques mentioned above would be appropriate; you may well have others, including informing people who carelessly make remarks about psychology that simply are not so. Let us all work towards the end of educating the public.

Interesting Careers in Psychology
Human Factors Expert
by Liz Gehr, PhD

Maybe I was different from my graduate school colleagues, but I never saw an academic career as the holy grail of graduate training in Psychology. I'm sure this had to do with my not-so-traditional preparation for Psychology graduate school in the first place. I never took a Psychology course until my Junior year of college. I was a double major in Physics and Electrical Engineering – the ideal combination for a lucrative career nowhere near academia. After I took some Psychology courses the idea of graduate training in Psychology started to appeal to me, so I applied and was accepted into an aging Experimental Psychology program. I knew that getting a PhD in Psychology was geared toward preparing students for an academic career, and I had in the back of my mind that this might not be what I wanted, but I kept my thoughts to myself, and threw myself into grad school. As I approached the end of my training, I started looking for a job – a non-academic job. I turned down a post-doc offer and put myself on the non-academic job market.

Out of three interesting, but very different, offers, I finally accepted one. I chose to work for Sprint, at its headquarters in Overland Park, KS. My highly descriptive job title was Member of Technical Staff III, a holdover from the AT&T telecom monopoly days. My job duties were to be quite varied but within an interesting group that I was eager to meet. The members of the group lived up to my expectations. My group consisted of highly educated, intelligent people with very diverse backgrounds – more diverse than I had found in an academic department at a university. There were a number of PhDs, in fields like Ceramics, Electrical Engineering, and Chemistry. The group's mission was to take a very long-term view of the network and try to figure out where it would be in 3 to 5 years.

I was the only group member with any background in Psychology. I was to be the Human Factors subject matter expert, which was an area sorely in need of help. Often, this consisted of simply providing a different perspective on the problem, as most of my colleagues were engineers. However, after I began, my duties quickly expanded to include other areas. I started helping to coordinate our sponsored university research, going to the universities to understand the research they were doing, and trying to figure out what parts were relevant to our business. I would then present the information I had gathered to my colleagues, who could follow through with specific researchers at the university. I enjoyed always being aware of the results of cutting edge research, without actually having to do all of the work!

While I was at Sprint I also took on some responsibilities when I saw a need that was not being filled, and I thought I had the right background to fill it. For example, like any large corporation, employees had to fill out many different surveys and questionnaires on

everything from employee satisfaction to customer focus. While my training was not in survey design, from my knowledge of general research design and analysis I knew that because of the badly written survey questions, the data that the survey makers would get would not be meaningful. So I took it upon myself to learn all I could about survey design. I ordered and read some books, and took a seminar at a conference I attended. After some preparation, I was able to market myself within the corporation as a knowledgeable source to help in survey design and analysis. I also took it upon myself to look for other people at Sprint doing similar work. I found two small groups of people, both on the PCS (wireless) side and was able to work with them on some small projects.

That was the positive part of my non-academic career in Psychology. The bad side was the economy. I joined Sprint in June 2001, and the economy only went downhill after that. We started having rounds of layoffs, which made going to work very stressful. I survived three rounds, during which the size of our group continued to dwindle, and many good people had to leave. The focus of the group kept changing, and finally they decided they couldn't have any "extras" like human factors, and I got tapped to leave in the fourth round. By then the tone and focus of the group was completely different from when I had first joined, and I had to agree I was not a good fit anymore. It was difficult to lose a job and leave the good friends I had made there.

So, now I am on the non-academic job market again, interviewing and trying to find my next opportunity. I continue to be surprised by the number and variety of possibilities that exist for a person with training in Experimental Psychology.

Advanced Training Institute Sorts the Data!

The APA Science Directorate's latest foray into advanced training for psychological scientists – a hands-on experience in mining large-scale databases – had a great start at the August ATI in Chapel Hill, North Carolina.

With the generous support of the National Institute of Child Health and Human Development (NICHD), APA organized this ATI to help investigators learn the intricacies of performing secondary data analysis, using the large longitudinal dataset from the ongoing Study of Early Child Care (SECC) as an example. Research Triangle Institute, a primary contractor in building this dataset for NICHD, partnered with APA in organizing the ATI.

The SECC data are from 1,364 families, followed since their infants' birth in 1991. The study covers demographic, family, maternal, paternal and caregiver characteristics; child social and emotional outcomes; language development; cognitive skills; school readiness; growth and health measures, and much more. It includes data collected by observation, testing, and face-to-face and phone interviews. This ATI was designed to introduce the SECC study and its available databases (currently from birth through the third year of school) so that researchers may independently use and train others to use the NICHD databases for original scholarship and publication.

Among the individuals in attendance were Ty Partridge and Jennifer DeGroot Hanawalt from Wayne State University in Detroit. When asked to comment on the ATI, here is what they said:

Ty Partridge

“Given my enthusiasm for the NICHD Study of Early Child Care and the opportunities it affords for the field, I was delighted to find out that there was an APA Advanced Training Institute regarding the dataset. I have worked with a number of archived datasets in secondary data analysis and all of them present a myriad of intricate difficulties. Often it can be a substantial challenge to discover even the most basic concepts, such as figuring out what variable a particular variable name refers to. Trying to understand why values seem to have been transformed from the descriptions of the original data or why the sample size of a given analysis doesn't seem to make sense can lead to weeks of frustration. So, the value of having the opportunity to sit down with the people who know the NICHD-SECC data most intimately cannot be overstated.

“The quality level of this ATI exceeded my expectations. The most impressive aspect of the training institute was the supporting material. Overall, the ATI was valuable to researchers who had a wide range of experience with secondary data, large databases, and statistics. I was fortunate to have the graduate student coordinator of my lab, Jennifer DeGroot Hanawalt, attend this training institute as well.

“It is clear that countless hours of work and exceptional foresight went into the documentation of this dataset. Now rather than spending six-months to a year trying to understand the data well enough to address even basic questions, we have been able to begin analyses on several projects that will be in the manuscript phase by the end of the semester. This research can be integrated with a cadre of interdisciplinary prevention, intervention and research efforts organized into a comprehensive program referred to as the Wayne State University Children’s Bridge program.”

Jennifer DeGroot Hanawalt

“As a graduate student, I found the ATI to be a comprehensive and user-friendly introduction to secondary data analysis, the details of this particular longitudinal data set, and the advanced statistics necessary to address complicated longitudinal questions. At the workshop we learned detailed information about the data collection process, the database, and the data itself. We were trained extensively on how to use the wealth of dictionaries and detailed manuals that accompany the dataset in order to find and understand data. The individualized statistical training and support provided by the group of statisticians was a rare and valuable opportunity to learn a variety of sophisticated statistical techniques and have individualized support as I attempted to employ these new techniques to address my hypotheses. The workshop was an excellent opportunity to meet researchers with similar interests and build a network of colleagues with whom to share ideas and research.”

Applications for the 2004 ATI on using the SECC data will be available in Spring 2004. Visit <http://www.apa.org/science/ati-info.html> for more information.

Announcements

- **Special Research Meeting on NSCAW**
June 2-6, 2004, Cornell University, Ithaca NY.
Sponsored by the National Data Archive on Child Abuse and Neglect

The National Data Archive on Child Abuse and Neglect is sponsoring a Special Research Meeting for analysis of The National Survey of Child and Adolescent Well-Being (NSCAW), Waves 1-3. Twelve applicants will be selected based on their commitment to analyzing the NSCAW data. Successful applicants will already have the data (available through the Archive) and submit a strong application by January 15, 2004. Applications will be available from the Archive Web site in mid-October www.ndacan.cornell.edu or by e-mailing NDACAN@cornell.edu.

- **New England Psychological Association (NEPA)**
43rd Annual Meeting
Salem State College, Salem, MA
November 7 - 8
contact: <http://nepa-info.org>
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- **Nominees Sought for National Science Foundation Distinguished Teaching Scholars Awards**

The National Science Foundation Director's Awards for Distinguished Teaching Scholars (DTS) recognizes and rewards six to eight individuals annually who are both meritorious scholars and exemplary teachers as evidenced by their ability to integrate their research and educational activities and to approach research and education in a scholarly manner. This year, for the first time, the program involves a two-step process. Nominations are due November 19, 2003, for the first step. A select group of individuals from the first round nominees will be invited to submit proposals by February 25, 2004. The URL for the solicitation is:
<http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf03591>.

Foundation Announces Deadlines for Upcoming Research Grants and Awards

The American Psychological Foundation (APF) is pleased to note the remaining 2003 and upcoming 2004 deadlines for grants and awards in support of psychological research. Please visit the APF website at www.apa.org/apf for information about application and nomination guidelines for each of these funding opportunities.

- November 1 **Roy Scrivner Research Grants** (Lesbian and Gay Family Psychology and Therapy)—up to \$10,000 for one doctoral-level and \$1,000 each for two dissertation-level research proposals. Please visit the APF website and www.hookprograms.org for guidelines.
- November 15 **Elizabeth Munsterberg Koppitz Research Fellowships** (Child Psychology)—up to \$20,000 each for three graduate fellowships, as well as up to four \$4,000 travel stipends each for attendance at professional meetings and conferences.
- December 1 **APF Gold Medal for Life Achievement in the Science of Psychology**—the recipient receives a medal, a \$2,000 contribution by the Foundation to his or her charitable nonprofit organization of choice, and travel to and accommodations (two nights/three days) for the 2004 APA convention in Honolulu.
- January 28 **Wayne F. Placek Small Research Grants** (Understanding Homosexuality and Preventing Homophobia) \$5,000 each for several small-scale pilot studies and time-sensitive investigations. Please visit www.hookprograms.org for guidelines.
- February 1 **Randy Gerson Memorial Research Grant** (Family/Couple/Multigenerational Processes) \$5,000 for one doctoral-level research proposal advancing theory, assessment, or clinical practice.
- March 1 **Frank J. McGuigan Young Investigator Prize** (Understanding the Human Mind) \$25,000 for a researcher no more than 9 years post-doctoral degree at deadline, who is examining the human mind from a psychophysiological, physiological, or behavioral perspective. Please visit www.apa.org/science/mcguigan.html.

- March 12 **Wayne F. Placek Large Research Grants** (Understanding Homosexuality and Preventing Homophobia) up to \$40,000 for two research proposals. Please visit www.hookprograms.org for guidelines and application forms.
- April 15 **Alexander Galnick Research Investigator Award** (Schizophrenia and Serious Mental Illness Research) \$20,000 for a researcher with at least 8 years of exceptional research and mentoring accomplishments in the area of serious mental illness, including schizophrenia, bipolar disorder, and delusional disorder.

Grants Available for Scientific Conferences, Proposals Invited

The Science Directorate is currently seeking proposals for research conferences in psychology. The purpose of this program is to promote the exchange of important new contributions and approaches in scientific psychology. The next deadline for applications is **December 1, 2003**.

Grant money ranging from \$500 to \$20,000 is available for the scientific conference. Proposals will be considered using such formats as “add-a-day” conferences (\$500-\$3,000 available), “stand alone” conferences (\$5,000-\$20,000 available), and festschrifts (\$5,000-\$20,000 available). APA is also open to innovative ways of holding conferences. The conference must be additionally supported by the host institution with direct funds, in-kind support, or a combination of the two. Please note that a detailed budget including institutional support is required for application.

Conference proposals must meet the following eligibility requirements:

- One of the primary organizers must be a member of APA.
 - Only academic institutions accredited by a regional body may apply. Independent research institutions must provide evidence of affiliation with an accredited institution. Joint proposals from cooperating institutions are encouraged.
 - Conferences may be held only in the United States, its possessions, or Canada.
- Conference summaries or other appropriate documents are normally requested to be submitted to APA after the conference is held for consideration for publication and dissemination under the authority of the association. APA reserves the right of first refusal for all publications from APA-sponsored conferences and will hold the copyright on such documents. Conferences should take place within approximately 12 months after the funding decision is made.

Seventy-five percent of funds will be distributed to grantees prior to the conferences, and the remaining twenty-five percent will be released when the manuscripts (which result

from the conference summaries) are ready for publication, as determined by APA. The documents will be published under the authority of APA.

Conference review committee members are: Stephen Ceci, PhD; Irene Frieze, PhD; Keith Humphreys, PhD; John Kihlstrom, PhD; Linda Parker, PhD; and Sheldon Zedeck, PhD. For more information on review criteria, proposal contents, and budget guidelines, please refer to the APA website at <http://www.apa.org/science/confer2.html> or contact Deborah McCall, Science Programs Manager, at (202) 218-3590.

PROPOSAL DEADLINE: DECEMBER 1, 2003

Please mail proposals to:
APA Science Directorate
750 First Street, NE
Attn: Scientific Conferences Proposals
Washington, DC 20002-4242
E-mail: science@apa.org
www.apa.org/science/confer.html

New Report Available on APA Science Directorate Web Site

Readers have been anxiously awaiting the release of the report from the Board of Scientific Affairs (BSA) Advisory Group on Conducting Research on the Internet and it is now available on the Science Directorate [web site](#).

BSA established the Advisory Group in 2001. Its charge was to explore emerging ethical and scientific issues related to the conduct of research over the Internet. The Advisory Group met during 2002 and subsequently issued a report that looks at the opportunities and challenges of conducting research on the Internet. The report also provides a set of suggestions for researchers and for Institutional Review Boards (IRBs) that oversee this type of research.

Members of the Advisory Group include:

Robert Kraut, Chair, Carnegie Mellon University
Amy Bruckman, Georgia Institute of Technology
Jeffrey Cohen, Weill Cornell Medical College
Mick Couper, University of Michigan, Institute for Social Research
Judy Olson, University of Michigan, School of Information
Mahzarin Banaji, BSA Liaison, Harvard University

Obituaries

John B. Carroll

John Bissell Carroll passed away in his home in Fairbanks, Alaska on Tuesday, July 1, 2003, at the age of 87. Dr. Carroll received a Ph.D. in psychology from the University of Minnesota. He made many contributions to the fields of psycholinguistics, the teaching of reading and language, and the understanding of human cognitive abilities. He taught at Mt. Holyoke College, Harvard University and the University of North Carolina and worked at the Educational Testing Service in Princeton, N.J. He was the author of numerous books and articles, publishing up until the time of his death. In 2002, he received the Gold Medal Award for Life Achievement in the Science of Psychology from the American Psychological Foundation.

Patricia Goldman-Rakic

Patricia S. Goldman-Rakic, professor of neuroscience, neurology, psychiatry and psychology at Yale University School of Medicine, died on July 31 at age 66. Considered a pioneer in the area of memory function, Goldman-Rakic's research also paved the way for scientists to understand the neurobiological basis of normal behavior and of diseases such as schizophrenia, Alzheimer's, Parkinson's and attention deficit-hyperactivity disorder. Goldman-Rakic brought a unique multidisciplinary approach to the study of the frontal lobe, a region of the brain once viewed as inaccessible to rigorous scientific analysis. She was the first to discover and describe the exquisite order and structure of this brain region, which is responsible for the highest level of cognitive functions. She was elected to the National Academy of Sciences in 1990 and was President of the Society for Neuroscience in 1989-90. She was a member of the American Academy of Arts and Sciences and the Institute of Medicine and was a fellow of The American Psychological Association.

Paul Pintrich

Paul Pintrich received his Ph.D. in 1982 from the Combined Program in Education and Psychology at the University of Michigan, of which he eventually became professor and Chair. He obtained an MA degree in developmental psychology from the same university. His research focused on the development of motivation, epistemological thinking, and self-regulated learning in adolescence. He has published over 110 articles, book chapters, and books in these areas. Pintrich was a Fellow of the American Psychological Association. He died on Saturday, July 12, 2003.