Center for Applied Neuroscience
"Putting neuroscience research into practice"
Specializing in the assessment of neurocognition

Thomas F. Kinsora, Ph.D.
Clinical Neuropsychologist

Supreme Court Clerk's Office
201 South Carson Street
Carson City, Nevada 89701

ADKT 0522

October 6, 2018

Re: October 19, 2018 public hearing on the proposed revision and update of the Nevada Rules of Civil Procedure and amendment to Rule 35. Physical and Mental Examinations.

Please let this serve as notice that I will be present at the hearing and will provide a comment from the bench at the meeting at the Nevada Supreme Court Courtroom, 408 East Clark Avenue, Las Vegas, Nevada at 10:00 am.

If you have any questions please contact me directly at 702 460-1930.

Thomas F. Kinsora, Ph.D.
Clinical Neuropsychologist
Adjunct Professor, University of Nevada, Las Vegas, Dept. of Psychology

18-39633

DECLARATION IN OPPOSITION TO THIRD PARTY OBSERVATION OF THE ADMINISTRATION OF STANDARDIZED MEASURES DURING PSYCHOLOGICAL NEUROPSYCHOLOGICAL INDEPENDENT MEDICAL EVALUATIONS

Re: IN THE MATTER OF REVISING RULE 35: Physical and Mental Examination, of the Nevada Rules of Civil Procedure.

I, Thomas F. Kinsora, I declare under penalty of perjury under the laws of the State of Nevada that the foregoing is true and correct to the best of my knowledge:

1. My name is Thomas F. Kinsora. I am over the age of twenty-one (21) years and have legal authority in the State of Nevada.
2. I am a Clinical Neuropsychologist. My business address is 716 South 6th Street, Las Vegas, Nevada 89101.
3. I am a licensed psychologist in the State of Nevada. I am an active member or affiliate member of the American Psychological Association (APA), International Neuropsychological Society (INS), National Academy of Neuropsychology (NAN), and the American Academy of Clinical Neuropsychology (AACN). My practice specialty is neuropsychological and psychological assessment. I have extensive experience conducting evaluations of individuals claiming cognitive injury/impairment in medical/legal contexts. My curriculum vitae is attached as **Exhibit A**.
4. In this affidavit I will explain how and why the exam conditions proposed will interfere with psychologists ability to develop valid expert opinions, how the proposed changes will conflict with the ethical guidelines of our profession,

and will compromise legal, contractual, and ethical obligations to ensure test security.

5. The proposed plans would allow for a third party to attend and/or make an audio recording of the examination. The Court should know that, to the best of my knowledge, *no formally trained and/or board certified neuropsychologist in the State of Nevada will be able to conduct such an examination because of the reasons expressed below.*
6. *The court should know that a psychological and neuropsychological examination can be broken into two broad part; the clinical interview and the administration of standardized measures.*
7. The Court should know that the administration of standardized measures of intelligence, cognitive functioning, etc is identical from examinee to examinee. The instructions are identical from patient to patient as read from the administrative manual. Cues are limited and prescribed by the standardized procedure. Since every measure is administered in a standardized manner, there is little to be gained from recording this section (but as will be discussed, there would be significant public harm). If an examiner needed to veer from standardized procedure (for example due to low vision, hearing issues, or severe cognitive impairment) we document the modification and discuss any compromise that might have resulted to test validity. This is a rare occurrence.

8. As a formally trained clinical neuropsychologist I cannot allow recording of a psychological/neuopsychological examination for several reasons. The principal justifications for the conditions are as follows:

   a. Neuropsychologists and psychologists have an obligation, both legal and ethical, to protect the security of the test instruments and guard against the potential misuse of the electronic record. This compromise (allowing for the audio recording of the diagnostic clinical interview) has been accepted by courts across various jurisdictions throughout the country.

   b. Unlike a physical examination, the psychological and neuropsychological interview involves a complex observational process that *unfolds* within a particular type of interpersonal context. This process is intended to facilitate the open disclosure of information that often involves the most intimate details of a person's life, both positive and negative. A skillful neuropsychologist observes more than just the words spoken by a examinee but also attends to their emotional tone, body language and other forms of nonverbal communication during the interview and assessment. Third-party observers, monitors and/or electronic recording equipment constitute a robust source of distortion of this subtle observational process, leading to alterations and potential contamination of the clinical data. These conditions commonly highlight the adversarial elements of the compulsory examination process, inhibiting the frank discussion and exploration of psychologically important events and experiences related to a person's mental, behavioral and emotional functioning. These alterations in interpersonal dynamics can hinder proper diagnosis. For example, many examinees will shut down when they know that their most intimate details will be recorded. What they do disclose will change significantly in the presence of an advocate, friend, or family member. A most blatant example of how problematic this observation might be is a situation in which a spouse or child is being abused and the adult committing the abuse is the adult who demands to observe the evaluation. The screening for abuse would almost certainly be met with denials while in the presence of the offending family member. As a result of the observer's presence, the psychologist may never learn of the ongoing abuse. On other occasions subtle omissions and misleading information will be conveyed to either protect the observer, avoid shame, or enhance emotions of the observer (for example a spouse or parent). If the

Court is interested in an evaluation that assist the tier of fact, allowing the presence of third party observation will reduce the chances of achieving this goal.

c. Third-party observers, monitors and/or electronic recording equipment can significantly interfere with my ability to establish trust and an optimal working rapport with the examinee.

d. There is a clear and well-established standard of practice within the psychology/neuropsychology community that standardized tests must be administered under conditions that closely replicate the conditions under which the tests were *standardized* during the test development process. Professor Anne Anastasi, in *Psychological Testing, Sixth Edition* (Macmillan Publishing Company, New York, 1988, p.25), a well-known treatise in the field and one that I consider to be authoritative on this point, has explicated this principle: ***"Standardization implies uniformity of procedure in administering and scoring the test. If the scores obtained by different persons are to be comparable, testing conditions must obviously be the same for all."***

e. *The Joint Committee on the Standards for Educational and Psychological Testing of the American Educational Research Association, the American Psychological Association, and the National Council on Measurement in Education published an agreed upon set of standards for test development and protections entitled "Standards for Educational and Psychological Testing (American Educational Research Association 2014; see* **Exhibit B)**. *They state:* ***"Test administrators should follow carefully the standardized procedures for administration and scoring specified by the test developer and any instructions from the test user" (p. 114: Test Administration Standard 6.1).*** The standard states ***"Specifications regarding instructions to test takers, time limits, the form of item presentation or response, and test materials or equipment should be strictly observed. In general, the same procedures should be followed as were used when obtaining the data for scaling and norming the test scores.*** " and again in Standard 6.4, they write ***"In general, the testing conditions should be equivalent to those that prevailed when norms and other interpretative data were obtained."*** (p. 116)

f. Inasmuch as all of the tests that I rely on for examining individuals with known or suspected neurocognitive problems are individually-administered and were standardized in the absence of electronic

recording devices, third-party observers and monitors, it is imperative that the examination proceed in a protected examiner-examinee environment, barring any extraordinary clinical reason indicating otherwise. Deviations from standardized administration procedures seriously compromise the utility of the normative data, which in turn increase the chances of inaccurate test results and erroneous diagnostic conclusions.

g. Due to threats of compromised test validity and security, major test publishers - the legal holders of numerous copyrights on proprietary test materials - recommend against the electronic monitoring, recording and observation of psychological and neuropsychological exams.

h. Phenomena referred to as *"social facilitation"* and *"observer effects"* have been consistently demonstrated within the psychological research literature. These phenomena pertain to the various ways in which the experience of being observed and/or recorded can artificially alter (i.e., distort) an individual's task performance. The research shows that social facilitation can have the effect of causing an individual's deficits to appear substantially worse than they actually are and their strengths to appear considerably better, resulting in inaccurate or invalid test data (see **Exhibit C**: Binder & Johnson-Greene (1995). Observer Effects on Neuropsychological Performance: A Case Report, *The Clinical Neuropsychologist,* 1995, V.9, No. 1, p.74-78 and "Presence of Third Parties During Neuropsychological Evaluations: Who is Evaluating Whom?" by McCaffrey, et al., *The Clinical Neuropsychologist* 1996, V. 10, p. 435-449, **and** McCaffrey RJ, Lynch, JK, Yantz, CL. (2005). Third Party Observers: Why All the Fuss, Journal of Forensic Neuropsychology, Vol. 4(2) 2005) Available research has clearly established that these biasing effects are entirely unrelated to the method of observation (i.e., a physically present third-party observer; audio or video-recording; observation through a one-way mirror; etc.) and whether or not the third-party attempts to overtly interrupt or disrupt the examination process. Simply being present, the third party affects the results of the evaluation.

i. The American Psychological Association's (APA) Ethical Principles of Psychologists and Code of Conduct (**Exhibit D**) require psychologists to maintain the "integrity and security" of tests and other assessment techniques (9.11, Maintaining Test Security, p. 13) and avoid promoting the use of psychological assessment techniques by "unqualified persons," meaning individuals who are not licensed to

practice psychology (9.07, Assessment by Unqualified Persons, p. 13). The prospect of an unlicensed (in psychology) party observing a neuropsychological examination, either 'live" or via videotape, recording test questions, taking notes, and acquiring information about test stimuli, procedures and content, etc., substantially increases the risk for compromising test security and raises concern of future examinees/litigants being *coached* or inappropriately prepared for examinations; a phenomenon documented in the empirical research literature (see for example **Exhibit E**: Youngjohn, J.R. (1995). Confirmed Attorney Coaching Prior to Neuropsychological Evaluation. *Assessment*, 2, 3,279-283).

j. Dissemination of psychological and neuropsychological test materials, stimuli and/or procedures in *any* form carries a risk of social harm, extending beyond the boundaries of the lawsuit, and poses a serious violation to a number of legal, ethical and professional requirements to protect the security of psychological and neuropsychological test instruments.

k. The Court should know that the tests used to examine of civil litigants are the very same tests that are used routinely across a wide range of assessment venues. These include but are not limited to: (a) determinations of fitness to parent; b) fitness to pilot an airplane; (c) fitness to practice medicine/surgery; (d) competency to stand trial; (e) work in law enforcement or a nuclear power facility (f) to receive special accommodations on the Bar Exam; (g) qualification for special academic accommodations and disability benefits; (h) fitness to practice law; etc. Exposure of the confidential test materials and procedures can easily undermine their future utility and validity. This is precisely why psychological test materials are protected in every state.

l. The National Academy of Neuropsychology, in their Official Statement of the National Academy of Neuropsychology indicate that "***Copying test protocols, video and/or audio taping a psychological or neuropsychological evaluation for release to a non-psychologist potentially violates the Ethical Principles of Psychologists and Code of Conduct (APA, 1992; APA, 2002), by placing confidential test procedures in the public domain 2.10), and by making tests available to persons unqualified to interpret them (APA, 1992; Codes 2.02, 2.06 and 2.10; APA, 2002; Codes 9.04 and 9.11).***" (See **Exhibit F**: Test Security: An Update. (2003). Official Statement of the National Academy of Neuropsychology Approved by the NAN Board of Directors On October 13, 2003)

9. The views expressed herein are by no means idiosyncratic. My opinions on these matters are entirely consistent with the published positions of the two major professional organizations in my field, the National Academy of Neuropsychology (NAN) and the American Academy of Clinical Neuropsychology (AACN).

10. The Court should be aware that even with a compromise, for example approving the recommendation that only the interview portion of the examination be subject to the proposed recommendations, the preservation of ideal self-disclosure, which is essential for proper diagnosis, will be eroded. There are also public safety concerns in this regard. As noted above, examinees often feel afraid, ashamed, or unwilling to discuss extremely private information when they are aware that they are being recorded, or when a third party, such as a friend or a family member is present. For example, an examinee may be unwilling to discuss a history of physical abuse if a friend, family member, or the offending spouse is present in the exam room. This extends to children in which ongoing abuse would rarely be brought up if the parent was present during the examination. Likewise, knowing that one is being recorded, or when a friend or family member (or other third party) is present, the dynamics of the interaction change and a filtering may occur that prevents the examination from occurring in the manner that facilitates proper diagnosis.

11. On many occasions during my 25+ years conducting evaluations, I have been informed of information during the examination that prompted a call to either Child Protective Services, or the Nevada Adult Protective Services. This information would not likely have been disclosed had the examination been recorded or had a spouse, family member, or friend, been present in the room.

12. Neuropsychological evaluations are tests of both performance and effort. These tests are designed to identify very subtle changes in cognitive function and performance and can be influenced by the presence of third parties during the examination. Specifically, neuropsychological performance of the examinee can decline in the presence of significant others such as friends, relatives and attorneys who are in the testing room during the evaluation, even if the third party is seated outside the direct view of the examinee, or when a camera is present. (**Exhibit F**: Kehrer, C.A., Sanchez, U.H., Rosenbaum, J.G. and Townes, B.D. (2000), "Effects of a significant-other on neuropsychological test performance," The Clinical Neuropsychologist, 14, 67-71 and Lynch, J. K. (2005) "Effects of a Third Party Observer on Neuropsychological Test Performance Following Closed Head Injury," Journal of Forensic Neuropsychology, 2005, 4, 17-25. and Laurence M. Binder & Douglas Johnson-Greene (1995) Observer effects on neuropsychological performance: A case report, The Clinical Neuropsychologist, 9:1, 74-78.).

13. Third party observations effects are observed to be pronounced in anxious examinees (also in **Exhibit F**: Fatemeh Rezaei, Nasrin Alsadat Hosseini Ramaghani & Rachel L. Fazio (2016): The effect of a third party observer and trait anxiety on neuropsychological performance: the Attentional Control Theory (ACT) perspective, The Clinical Neuropsychologist: **AND** Julie E. Horwitz, Robert J. McCaffrey (2008). Effects of a third party observer and anxiety on tests of executive function. Archives of Clinical Neuropsychology, Volume 23, Issue 4, July 2008, Pages 409-417).

14. Third party observations effects are observed to be pronounced in traumatic brain injury patients (**Exhibit G:** Lynch, J. K. (2005). Effect of a Third Party Observer on Neuropsychological Test Performance Following Closed Head Injury. Journal Of Forensic Neuropsychology, 4(2), 17-25).

15. Third party observations effects are observed to be pronounced when significant others are present (**Exhibit H**: Constance A. Kehrer , Phyllis N. Sanchez , Ulya Habif , Gail J. Rosenbaum & Brenda D. Townes (2000) Effects of a Significant-Other Observer on Neuropsychological Test Performance, The Clinical Neuropsychologist, 14:1, 67-71).

16. The negative effects of third party observation can be as large as or larger than a standard deviation, which could have the result of moving an average memory score of 90 to an impaired memory score of 75, thereby yielding a false and inaccurate picture of impairment. Consequently, testing standards call for a distraction free environment and specifically state that third party

observers should be excluded from the examining room (See **Exhibit I**: Axelrod, B., Heilbronner, R., Barth, J., Larrabee, G., Faust, D., Pliskin, N., & ... Silver, C. (2000). Test security: Official position statement of the National Academy of Neuropsychology. Archives Of Clinical Neuropsychology, 15(5), 383-386; and Test Security: An Update. (2003). Official Statement of the National Academy of Neuropsychology Approved by the NAN Board of Directors On October 13, 2003.) .

17. If the examinee does have cognitive issues, their cognitive issues make the examinee particularly susceptible to distraction during a neuropsychological evaluation and the presence of a third party in the examination room during testing would very likely impact the test results. Likewise, the very knowledge of being recorded in any fashion may impact the examinee's ability to perform on the measures in the same manner exhibited by the subjects studies in the normative standardization of the measure.

18. In addition to the foregoing, the presence of a third party in the testing room during a neuropsychological examination violates ethical principles held by psychologists by subjecting highly confidential test content, test manuals, examination procedures and propriety trade secrets to the public domain.

19. Furthermore, these tests, manuals and procedures are only to be released to other licensed psychologists who are qualified to interpret such information.

20. The legal, ethical, and professional restrictions placed on the release of testing information are not designed only to ensure persons with appropriate

training interpret the data, but also to ensure that the validity of the tests themselves is not jeopardized by the public dissemination of test materials or the disclosure of trade secrets and copyrighted materials to non-psychologists, which includes attorneys.

21. Third party observation is not consistent with how the measures were designed to be administered. In 2000 the National Academy of Neuropsychology published an "Official Statement" about the "Presence of Third Party Observers During Neuropsychological Testing", (**Exhibit J**: B Axelrod (2000). Presence of third party observers during neuropsychological testing: Official statement of the National Academy of Neuropsychology. Archives of clinical neuropsychology, Vol.15(5), p.379-380). This professional organization's opinion was that the "***presence of a third party observer during the administration of formal test procedures in inconsistent with recommendations promulgated in [published standards], that the psychological testing environment be distraction free.***" (p. 379). The same publication noted another reason why observation should not be permitted: ***"Neuropsychological test measures have not been standardized in the presence of an observer. In fact, neuropsychological test measures have been standardized under a specific set of highly controlled circumstances that did not include the presence of a third party observer. The presence of a third party observer introduces an unknown variable into the testing environment which may pervert the examinee's performance from being***

compared to established norms and potentially precludes valid interpretation of the test results." (p.379).

22. The Official Statement notes that the observer effect can cause performance on more complex tests to decline, leading to a "***spuriously magnified picture of neuropsychological deficit***". It can also "***fundamentally alter the test session***", particularly in comparison to an earlier standardized test without an observer. (p. 379). The report went on to conclude that "***the presence of a third party observer during formal testing may represent a threat to the validity and reliability of the data generated by an examination conducted under these circumstances, and may compromise the valid use of normative data in interpreting test scores.***" (p. 380). Their final conclusion: "***The weight of accumulated scientific and clinical literature with respect to the issue of third party observers in the forensic examination provides clear support for the official position of the National Academy of Neuropsychology that neuropsychologists should strive to minimize all influences that may compromise accuracy of assessment and should make every effort to exclude observers from the evaluation.***" I agree with these opinions.

23. Neuropsychologist are ethically bound to provide reports that are as accurate as possible. These ethical issues are strained when factors that skew test results, such as recording and observation are introduced into the test environment.

24. Neuropsychologists are ethically bound to protect the security of testing materials and methods. The proposed rule changes would cause the neuropsychologist or psychologist to violate these standards if they permitted third party presence.

25. In 2000 the National Academy of Neuropsychology also published an Official Statement about Test Security (Archives of Clinical Neuropsychology, Vol 15, No 5,pp 383-386 (2000) (**Exhibit K**: Axelrod, B., Heilbronner, R., Barth, J., Larrabee, G., Faust, D., Pliskin, N., & ... Silver, C. (2000). Test security: Official position statement of the National Academy of Neuropsychology. Archives Of Clinical Neuropsychology, 15(5), 383-386.). As noted therein at p. 383: "*Copying test protocols, video and/or audiotaping a psychological or neuropsychological evaluation for release to a non-psychologist violates the Ethical Principles of Psychologists and Code of Conduct (APA, 1992), by placing confidential test procedures in the public domain (APA Principles 2.10), and by making tests available to persons unqualified to interpret them (APA Principles 2.02, 20.06). Such requests can also place the psychologist in potential conflict with state laws regulating the practice of psychology. Maintaining test security is critical, because of the harm that can result from public dissemination of novel test procedures. Audio or video-recording a neuropsychological examination results in a product that can be disseminated without regard to the need to maintain test security.*"

26. The National Academy of Neuropsychology published "Test Security: An Update" in 2003 (**Exhibit I**.). In this updated position statement they write "*Threats to test security by release of test data to non-psychologists are significant. Research confirms what is seemingly already evident: individuals who gain access to test content can and do manipulate tests and coach others to manipulate results, and they are also more likely to circumvent methods for detecting test manipulation (Coleman, Rapport, Millis, Ricker and Farchione, 1998; Wetter and Corrigan, 1995; Youngjohn, 1995; Youngjohn, Lees-Haley & Binder, 1999). Consequently, uncontrolled release of test procedures to non-psychologists, via stenographic, audio or visual recording potentially jeopardizes the validity of these procedures for future use.* " They later state "*Maintaining test security is critical, because of the harm that can result from public dissemination of novel test procedures. Audio or video recording a neuropsychological examination results in a product that can be disseminated without regard to the need to maintain test security. The potential disclosure of test instructions, questions, and items by replaying recorded examinations can enable individuals to determine or alter their responses in advance of actual examination. Thus, a likely and foreseeable consequence of uncontrolled test release is widespread circulation, leading to the opportunity to determine answers in advance, and to manipulate test performances. This*

is analogous to the situation in which a student gains access to test items and the answer key for a final examination prior to taking the test."

27. Therefore, to preserve the integrity of the testing process and its results, it is vital that the original conditions used in the standardization of the measure be preserved and be free from the psychological effects of being monitored or observed, in any manner or form, by an outside party during the administration of standardized psychological testing or during the diagnostic clinical interview.

The above is true and correct to the best of my personal knowledge.

Thomas F. Kinsora, Ph.D.
October 6, 2018

Exhibit A:

Curriculum Vitae

THOMAS FRANCIS KINSORA, PH.D.
716 South 6th Street Las Vegas, Nevada 89101 (702) 382-3670

EDUCATION

CALIFORNIA SCHOOL OF PROFESSIONAL PSYCHOLOGY
Ph.D. Program accredited by the **American Psychological Association.**
Degree received:

- **Ph.D.** in Clinical Psychology with Certificate of emphasis in Neuropsychology/Behavioral Medicine, February, 1991
- **M.A.** in Clinical Psychology, 1986

WAYNE STATE UNIVERSITY, Detroit, Michigan 1981-1984.
Degree Received:

- **B.A.** (Major: Psychology co-major: International Peace and Conflict Resolution) 1984

DOCTORAL RESEARCH: Implicit stem-completion priming and memory processing in the differentiation of Alzheimer's type dementia from Parkinson's related dementia.

TOTAL SUPERVISED TRAINING HOURS IN CLINICAL NEUROPSYCHOLOGY

Over 8000 hours spanning five years. All supervision provided by formally trained clinical neuropsychologists. Formal training meets criteria for definition of clinical neuropsychologist established by the National Academy of Neuropsychology and the Neuropsychology Division of the American Psychological Association.

CLINICAL EXPERIENCE

2008 – Present **UNIVERSITY OF NEVADA LAS VEGAS**
Adjunct Professor, Neuropsychology

- Center for Applied Neuroscience is a Practicum training site for the APA Approved Doctoral Program in Psychology. Teach neuropsychological assessment as well as intermediate and advanced interpretation of neuropsychological data.

1993 – Present **CENTER FOR APPLIED NEUROSCIENCE**

- Neuropsychological Assessment (Child, Adult, Elderly)
- Forensic/Medical-Legal Work and Independent Medical Evaluations
- Disability Examinations
- Criminal Forensic Evaluations
- Expert testimony and case consultation on complex medical\legal cases.
- Deposition and Courtroom experience
- Independent Medical Evaluations for Workers Compensation Claims
- Concussion Management services to Nevada high schools (in partnership with Staci R. Ross, Ph.D., ABPP and operating under the name Sports Concussion Specialists of Nevada). Manage concussion consultation for approximately 15,000 Nevada High School Students. Concussion

management consultation includes:

- All Clark County School District High School Athletes
- Lyon County School District Athletes
- Washoe County School District
- Professional Boxers as referred

1992-July, 1994 **COMMUNITY REHABILITATION SERVICES OF LAS VEGAS**

Director of Clinical Services/Neuropsychology

Postdoctoral supervis./training (1992-1993) by - Lewis Etcoff, Ph.D. ABPN

- Directed delivery of brain injury rehabilitation by multidiscipline team.
- Consultation with rehabilitation team to coordinate treatment.
- Neuropsychological/Neurobehavioral Assessment.
- Psychotherapy.

1988-1992 **REHABILITATION INSTITUTE OF MICHIGAN** Detroit, Michigan. Not-for-profit medical rehabilitation facility at Detroit Medical Center. Employment included approximately 3200 hours of pre-doctoral and 2800 hours of post-doctoral supervised experience. November, 1988-February, 1991 ABD level in Ph.D. level position with limited license, and as of February, 1991 post-doctoral limited license psychologist.

Traumatic Brain Injury Unit (1989-July 24, 1992)

Acting as the lead or primary neuropsychologist on the Traumatic Brain Injury Unit.*

Pre/post doctoral supervis/training: Scott Millis, PhD ABPP-ABCN; Mitchell Rosenthal, PhD

- Neuropsychological assessment
- Behavior programming/Cognitive "remediation" consultation
- Comprehensive multidisciplinary five day IMEs (neuropsychological assessment)
- Multiple research related activities
- Inservice education to treatment team and medical residents/staff
- Program development
- Psychotherapy

Stroke Unit (1988)

Supervision by-Diane Klisz-Karle, Ph.D.

1988-Sept. 1992 **PSYCHOLOGICAL SYSTEMS, INC** Huntington Woods, Michigan.

Pre/post-doctoral supervis./training: Manfred F. Greiffenstein, PhD, ABPP-ABCN

- Neuropsychological Assessment
- Assessment of Learning Disabilities
- Forensic/Medical-Legal Work and Independent Medical Evaluations
- Detection of Malingering/Exaggeration of Symptoms

* Not sure of the official title to this position, but is the most precise description that I can come up with.

1990 Recipient of a $10,000 United Way/Kenny R.E.H.A.B. sponsored grant to investigate stem completion frequencies to be used in the design of a new memory measure based on current theoretical principles in stem completion priming and cued recall.

1990-1991 Involved as a research liaison and in data collection for the Neuropsychology component of a NIDRR sponsored grant entitled: "A Comprehensive Model of Research and Rehabilitation for the Traumatically Brain Injured". Co-developed a battery of neuropsychological measures to provide an index of change throughout the course of recovery. The project involves the coordination of five major rehabilitation facilities.

1989-1992 **Grant Review Panel Appointment**
Research Funds Allocation Committee. Review research proposals for funding of United Foundation sponsored grants for research.

1988-1990 **VETERANS ADMINISTRATION MEDICAL CENTER** Allen Park, Michigan.
Conducted research for doctoral dissertation on the differentiation of dementia subgroups by their performance on an implicit memory measure.

1983 **WAYNE STATE UNIVERSITY** Detroit, Michigan.
Administered psychological and neuropsychological measures to relatives of schizophrenics for a research project conducted by Gerald Rosenbaum, Ph.D., Professor, WSU.

INTERNATIONAL CONFERENCE PRESENTATIONS

1989 **INTERNATIONAL NEUROPSYCHOLOGICAL SOCIETY**
Seventeenth Annual Meeting, Vancouver, British Columbia, Canada. Panel **"Anoetic Verbal Priming in Cortical and Subcortical Dementia"**.

PUBLICATIONS/Research Presentations

Hussey, J., Ng, W. W. Y., Witoslawski, D. E., Kinsora, T. F., Ross, S. R., & Allen, D. N. (2018, October). Concussion rate differences across football positions. Poster session presented at the 38th Annual Conference of the National Academy of Neuropsychology, New Orleans, LA.

Hussey, J., Ng, W. W. Y., Flood, S. M., Kinsora, T. F., Ross, S. R., & Allen, D. N. (2018, October). Rates of sport concussion in contact and non-contact sports. Poster session presented at the 38th Annual Conference of the National Academy of Neuropsychology, New Orleans, LA.

1987-1988 **VETERANS ADMINISTRATION MEDICAL CENTER** Allen Park, Michigan.
Pre-doctoral Internship, American Psychological Association Accredited.
Neuropsychology Department (1 year)
Supervis./Training: *Manfred Greiffenstein, PhD, ABPP-ABCN*

- Neuropsychological Assessment
- Sleep Lab Assessments

Outpatient Clinic (1 year)
Supervis./Training: Joseph Druker, PhD; John Wickey, PhD

- Psychoanalytic Psychotherapy (short/long term)
- Intake Interviews
- Psychodiagnostic Testing

Inpatient Psychiatric Unit (6 months)
Supervis//Training: Morris Bruck, PhD

- Co-led Group Therapy

1986-1987 **FRESNO TREATMENT CENTER** Fresno, California.
Practicum Training and Supervision
A residential treatment facility for adolescents with emotional, behavioral, and substance abuse disorders.

1985-1986 **CALIFORNIA MENS COLONY** San Luis Obispo, California.
Practicum - Prison with "protective custody" inmates and psychiatric care.

- Personality Assessment
- Individual psychotherapy
- Group Substance abuse therapy

1985-1986 **HAMMS DOWNTOWN SCHOOL** Fresno, California.
Practicum - A private school for children with disorders of emotion and behavior.

- Individual psychotherapy and play therapy

1985 **FRESNO UNIFIED SCHOOL DISTRICT** Fresno, California.
Practicum (6 month practicum)

- Intellectual and Projective Personality Testing.

RESEARCH EXPERIENCE AND ACQUIRED GRANTS

REHABILITATION INSTITUTE OF MICHIGAN Detroit, Michigan.

1996-2006 Wrote or assisted in writing grants totaling over $1 million dollars related to the delivery of services to children and families served by Nevada Children's Center.

1991 Recipient of a $15,000 United Way/Kenny R.E.H.A.B. sponsored grant to develop a new memory measure. Title of research: "Anoetic Verbal Priming: A normative investigation of stem completion priming."

Hussey, J., Witoslawski, D. E., Sheikh, R. M., Kinsora, T. F., Ross, S. R., & Allen, D. N. (2018, October). Demographic factors and likelihood of sport concussion. Poster session presented at the 38th Annual Conference of the National Academy of Neuropsychology, New Orleans, LA.

Hussey, J., Becker, M., Call, E., Juarez, N., Kinsora, T., Ross, S. & Allen, D. N. (2017, October). Effects of native language on ImPACT baseline scores. Poster presentation at the 37th Annual Conference of the National Academy of Neuropsychology, Boston, MA

Kinsora, T. F., Greiffenstein, M. F., Verma, N. P., & Nichols, C. N. (1989). Anoetic verbal priming in cortical and subcortical dementia. Journal of Clinical and Experimental Neuropsychology, 11, 53. (Abstract).

PROFESSIONAL MEMBERSHIPS

International Neuropsychological Society
National Academy of Neuropsychology
American Academy of Clinical Neuropsychology, Affiliate Member
Nevada State Psychological Association
American Psychological Association
Division 40 (Neuropsychology Division) of the American Psychological Association

BOARD MEMBERSHIPS/Consultations (Non reimbursed)

Nevada Board of Bar Examiners (Expert Panel on Special Accommodations)
1996 to present
Nevada State Psychological Association - Southern Division
Secretary 1996 to 1999; Chair, 1999-2000
Nevada Children's Center - Board of Directors
President, 1997-2005; 2009-2010, Vice President, 2011; 2013 advisory member.
National Multiple Sclerosis Society - Desert Southwest Chapter
Program Service Committee Chairman 1993-1996
Traumatic Brain Injury Professional Group 1993-1995

Exhibit B:

Standards for Educational and Psychological Testing

STANDARDS FOR TEST ADMINISTRATION, SCORING, REPORTING, AND INTERPRETATION

The standards in this chapter begin with an overarching standard (numbered 6.0), which is designed to convey the central intent or primary focus of the chapter. The overarching standard may also be viewed as the guiding principle of the chapter, and is applicable to all tests and test users. All subsequent standards have been separated into three thematic clusters labeled as follows:

1. Test Administration
2. Test Scoring
3. Reporting and Interpretation

Standard 6.0

To support useful interpretations of score results, assessment instruments should have established procedures for test administration, scoring, reporting, and interpretation. Those responsible for administering, scoring, reporting, and interpreting should have sufficient training and supports to help them follow the established procedures. Adherence to the established procedures should be monitored, and any material errors should be documented and, if possible, corrected.

Comment: In order to support the validity of score interpretations, administration should follow any and all established procedures, and compliance with such procedures needs to be monitored.

Cluster 1. Test Administration

Standard 6.1

Test administrators should follow carefully the standardized procedures for administration and scoring specified by the test developer and any instructions from the test user.

Comment: Those responsible for testing programs should provide appropriate training, documentation, and oversight so that the individuals who administer or score the test(s) are proficient in the appropriate test administration or scoring procedures and understand the importance of adhering to the directions provided by the test developer. Large-scale testing programs should specify accepted standardized procedures for determining accommodations and other acceptable variations in test administration. Training should enable test administrators to make appropriate adjustments if an accommodation or modification is required that is not covered by the standardized procedures.

Specifications regarding instructions to test takers, time limits, the form of item presentation or response, and test materials or equipment should be strictly observed. In general, the same procedures should be followed as were used when obtaining the data for scaling and norming the test scores. Some programs do not scale or establish norms, such as portfolio assessments and most alternate academic assessments for students with severe cognitive disabilities. However, these programs typically have specified standardized procedures for administration and scoring when they establish performance standards. A test taker with a disability may require variations to provide access without changing the construct that is measured. Other special circumstances may require some flexibility in administration, such as language support to provide access under certain conditions, or some clinical or neuropsychological evaluations, in addition to procedures related to accommodations. Judgments of the suitability of adjustments should be tempered by the consideration that departures from standard procedures may jeopardize the validity or complicate the comparability of the test score interpretations. These judgments should be made by qualified individuals and be consistent with the guidelines provided by the test user or test developer.

Policies regarding retesting should be established by the test developer or user. The test user and administrator should follow the established policy. Such retest policies should be clearly communicated

by the test user as part of the conditions for standardized test administration. Retesting is intended to decrease the probability that a person will be incorrectly classified as not meeting some standard. For example, some testing programs specify that a person may retake the test; some offer multiple opportunities to take a test, for example when passing the test is required for high school graduation or credentialing.

Test developers should specify the standardized administration conditions that support intended uses of score interpretations. Test users should be aware of the implications of less controlled administration conditions. Test users are responsible for providing technical and other support to help ensure that test administrations meet these conditions to the extent possible. However, technology and the Internet have made it possible to administer tests in many settings, including settings in which the administration conditions may not be strictly controlled or monitored. Those who allow lack of standardization are responsible for providing evidence that the lack of standardization did not affect test-taker performance or the quality or comparability of the scores produced. Complete documentation would include reporting the extent to which standardized administration conditions were not met.

Characteristics such as time limits, choices about item types and response formats, complex interfaces, and instructions that potentially add construct-irrelevant variance should be scrutinized in terms of the test purpose and the constructs being measured. Appropriate usability and empirical research should be carried out, as feasible, to document and ideally minimize the impact of sources or conditions that contribute to construct-irrelevant variability.

Standard 6.2

When formal procedures have been established for requesting and receiving accommodations, test takers should be informed of these procedures in advance of testing.

Comment: When testing programs have established procedures and criteria for identifying and providing accommodations for test takers, the procedures and criteria should be carefully followed and documented. Ideally, these procedures include how to consider the instances when some alternative may be appropriate in addition to those accommodations foreseen and specified by the test developer. Test takers should be informed of any testing accommodations that may be available to them and the process and requirements, if any, for obtaining needed accommodations. Similarly, in educational settings, appropriate school personnel and parents/legal guardians should be informed of the requirements, if any, for obtaining needed accommodations for students being tested.

Standard 6.3

Changes or disruptions to standardized test administration procedures or scoring should be documented and reported to the test user.

Comment: Information about the nature of changes to standardized administration or scoring procedures should be maintained in secure data files so that research studies or case reviews based on test records can take it into account. This includes not only accommodations or modifications for particular test takers but also disruptions in the testing environment that may affect all test takers in the testing session. A researcher may wish to use only the records based on standardized administration. In other cases, research studies may depend on such information to form groups of test takers. Test users or test sponsors should establish policies specifying who secures the data files, who may have access to the files, and, if necessary, how to maintain confidentiality of respondents, for example by de-identifying respondents. Whether the information about deviations from standard procedures is reported to users of test data depends on considerations such as whether the users are admissions officers or users of individualized psychological reports in clinical settings. If such reports are made, it may be appropriate to include clear documentation of any deviation from standard administration procedures, discussion of how such administrative variations may have

affected the results, and perhaps certain cautions. For example, test users may need to be informed about the comparability of scores when modifications are provided (see chap. 3, "Fairness in Testing," and chap. 9, "The Rights and Responsibilities of Test Users"). If a deviation or change to a standardized test administration procedure is judged significant enough to adversely affect the validity of score interpretation, then appropriate action should be taken, such as not reporting the scores, invalidating the scores, or providing opportunities for readministration under appropriate circumstances. Testing environments that are not monitored (e.g., in temporary conditions or on the Internet) should meet these standardized administration conditions; otherwise, the report on scores should note that standardized conditions were not guaranteed.

Standard 6.4

The testing environment should furnish reasonable comfort with minimal distractions to avoid construct-irrelevant variance.

Comment: Test developers should provide information regarding the intended test administration conditions and environment. Noise, disruption in the testing area, extremes of temperature, poor lighting, inadequate work space, illegible materials, and malfunctioning computers are among the conditions that should be avoided in testing situations, unless measuring the construct requires such conditions. The testing site should be readily accessible. Technology-based administrations should avoid distractions such as equipment or Internet-connectivity failures, or large variations in the time taken to present test items or score responses. Testing sessions should be monitored where appropriate to assist the test taker when a need arises and to maintain proper administrative procedures. In general, the testing conditions should be equivalent to those that prevailed when norms and other interpretative data were obtained.

Standard 6.5

Test takers should be provided appropriate instructions, practice, and other support necessary to reduce construct-irrelevant variance.

Comment: Instructions to test takers should clearly indicate how to make responses, except when doing so would obstruct measurement of the intended construct (e.g., when an individual's spontaneous approach to the test-taking situation is being assessed). Instructions should also be given in the use of any equipment or software likely to be unfamiliar to test takers, unless accommodating to unfamiliar tools is part of what is being assessed. The functions or interfaces of computer-administered tests may be unfamiliar to some test takers, who may need to be shown how to log on, navigate, or access tools. Practice opportunities should be given when equipment is involved, unless use of the equipment is being assessed. Some test takers may need practice responding with particular means required by the test, such as filling in a multiple-choice "bubble" or interacting with a multimedia simulation. Where possible, practice responses should be monitored to confirm that the test taker is making acceptable responses. If a test taker is unable to use the equipment or make the responses, it may be appropriate to consider alternative testing modes. In addition, test takers should be clearly informed on how their rate of work may affect scores, and how certain responses, such as not responding, guessing, or responding incorrectly, will be treated in scoring, unless such directions would undermine the construct being assessed.

Standard 6.6

Reasonable efforts should be made to ensure the integrity of test scores by eliminating opportunities for test takers to attain scores by fraudulent or deceptive means.

Comment: In testing programs where the results may be viewed as having important consequences, score integrity should be supported through active

efforts to prevent, detect, and correct scores obtained by fraudulent or deceptive means. Such efforts may include, when appropriate and practicable, stipulating requirements for identification, constructing seating charts, assigning test takers to seats, requiring appropriate space between seats, and providing continuous monitoring of the testing process. Test developers should design test materials and procedures to minimize the possibility of cheating. A local change in the date or time of testing may offer an opportunity for cheating. Test administrators should be trained on how to take appropriate precautions against and detect opportunities to cheat, such as opportunities afforded by technology that would allow a test taker to communicate with an accomplice outside the testing area, or technology that would allow a test taker to copy test information for subsequent disclosure. Test administrators should follow established policies for dealing with any instances of testing irregularity. In general, steps should be taken to minimize the possibility of breaches in test security, and to detect any breaches. In any evaluation of work products (e.g., portfolios) steps should be taken to ensure that the product represents the test taker's own work, and that the amount and kind of assistance provided is consistent with the intent of the assessment. Ancillary documentation, such as the date when the work was done, may be useful. Testing programs may use technologies during scoring to detect possible irregularities, such as computer analyses of erasure patterns, similar answer patterns for multiple test takers, plagiarism from online sources, or unusual item parameter shifts. Users of such technologies are responsible for their accuracy and appropriate application. Test developers and test users may need to monitor for disclosure of test items on the Internet or from other sources. Testing programs with high-stakes consequences should have defined policies and procedures for detecting and processing potential testing irregularities—including a process by which a person charged with an irregularity can qualify for and/or present an appeal—and for invalidating test scores and providing opportunity for retesting.

Standard 6.7

Test users have the responsibility of protecting the security of test materials at all times.

Comment: Those who have test materials under their control should, with due consideration of ethical and legal requirements, take all steps necessary to ensure that only individuals with legitimate needs and qualifications for access to test materials are able to obtain such access before the test administration, and afterwards as well, if any part of the test will be reused at a later time. Concerns with inappropriate access to test materials include inappropriate disclosure of test content, tampering with test responses or results, and protection of test taker's privacy rights. Test users must balance test security with the rights of all test takers and test users. When sensitive test documents are at issue in court or in administrative agency challenges, it is important to identify security and privacy concerns and needed protections at the outset. Parties should ensure that the release or exposure of such documents (including specific sections of those documents that may warrant redaction) to third parties, experts, and the courts/agencies themselves are consistent with conditions (often reflected in protective orders) that do not result in inappropriate disclosure and that do not risk unwarranted release beyond the particular setting in which the challenge has occurred. Under certain circumstances, when sensitive test documents are challenged, it may be appropriate to employ an independent third party, using a closely supervised secure procedure to conduct a review of the relevant materials rather than placing tests, manuals, or a test taker's test responses in the public record. Those who have confidential information related to testing, such as registration information, scheduling, and payments, have similar responsibility for protecting that information. Those with test materials under their control should use and disclose such information only in accordance with any applicable privacy laws.

Exhibit C:

Observer Effects on Neuropsychological Performance: A Case Report

and

"Presence of Third Parties During Neuropsychological Evaluations: Who is Evaluating Whom

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Observer Effects on Neuropsychological Performance: A Case Report*

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ABSTRACT

A woman with medically intractable epileptic seizures, mesial temporal sclerosis, developmental cognitive deficits, and dependent personality traits received the Portland Digit Recognition Test (PDRT) as part of a comprehensive neuropsychological battery. Portions of the PDRT were administered with her mother alternately present and absent in an A-B-A-B design. The patient performed significantly worse with her mother present than with her mother absent. The results suggest that situational variables sometimes have a potent effect on neuropsychological performance. The general practice of excluding significant others from the examining room during testing should be continued. The medicolegal implication of these data is that attorneys also should be excluded from the examination.

The effect of situational variables on neuropsychological performance has received scant attention in the literature in recent years. Earlier work considered examiner effects on intellectual and personality test performance (Anastasi, 1982), but we are aware of only one study considering examiner effects on neuropsychological performance of adults with brain dysfunction (Parsons & Stewart, 1966). Other incompletely investigated variables are of concern to clinicians. For example, it is the standard practice of many practitioners to exclude significant others of the patient from observing testing, but we know of no studies that examined the effects of the presence of others on test performance. Recently, the question of observer effects on neuropsychological performance has acquired medicolegal importance. In the State of Washington, attorneys have the right to be present during neuropsychological and psychiatric examinations performed at the request of defendants despite the objections of examiners.

In this paper we describe an adult patient with diagnoses of epilepsy and dependent personality traits who demonstrated greater impairment during testing when her mother was present. The negative effect of the mother's presence was demonstrated through a partly serendipitous A-B-A-B design. To our knowledge, this is the first demonstration that an observer can impair neuropsychological performance.

CASE REPORT

DL (not her real initials), a 26-year-old, right-handed woman, was referred for a neuropsychological evaluation as part of an intensive video-telemetry EEG inpatient evaluation of her medically intractable seizure disorder. She had experienced seizures regularly since approximately 2 years of age and had been on anticonvulsant medications for much of her life and continuously for the last 6 years. Since the age of 20 she and her parents estimated an average frequency of four seizures per month. During the 4 months prior to admission her seizure frequency increased concomittant with a decrease in her anticonvulsant medication because of persistent gastrointestinal distress. At the time of admis-

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sion the family estimated that she was experiencing as many as three "mild" (presumably, complex partial) seizures daily and one to two generalized seizures per week. Prior to many of these seizures she complained that she was not feeling well and then called out for her mother. She was being treated with carbamazepine and valproic acid.

DL reached developmental milestones more slowly than most other children and attended special education classes throughout her schooling. She obtained a high school diploma. DL had always lived with her parents and never had been involved in a serious romantic relationship. She had worked part-time for brief intervals as a restaurant busperson, hospital aide, and babysitter. She had not been employed for 4 years, and she was receiving Social Security disability benefits for her medical condition. Her finances were managed by her parents. Her social contacts were limited to her immediate family.

DL experienced a total of six partial complex seizures during the 7 days of inpatient intensive EEG monitoring. During all episodes DL typically turned to her mother and said "I don't feel good." EEG recordings during DL's seizure episodes revealed epileptiform activity originating within the right temporal region. Neuroimaging findings were consistent with the EEG recordings. The MRI scan revealed atrophy of the right hippocampus and right mesial temporal sclerosis.

Except as described below, all neuropsychological data were obtained with her mother absent from her hospital room where she was tested. Results of intelligence testing placed her within the borderline range of intellectual functioning. Deficits were observed in almost all areas of neuropsychological functioning that were assessed with the exception of memory for verbal material (See Table 1).

Initially, DL received an abbreviated form of the Portland Digit Recognition Test (PDRT; Binder, 1993a) which included all 18 items with the 5-s delays, all 18 items with the 15-s delays, and a few hard items. The test had been abbreviated because it failed to show evidence of motivation to perform poorly. DL initially was correct on 13 of 18 5-s items, 8 of 18 15-s items, and 7 of 10 30-s items. The mother was not present during this testing. However, because our epilepsy protocol specified administration of the entire PDRT, an examiner returned to the patient's hospital room to complete the test.

When the examiner arrived in the patient's room, the mother was present and expressed the desire to remain in the event the patient spilled a large soft drink that she was sipping from a cup as she sat in bed. Although the patient demonstrated normal ability to drink without spillage, the examiner elected to proceed with the mother present. The PDRT 30-s delay items were continued, and DL erred on 8 of the next 13 items. The mother then was asked to leave, and she did without protest. The patient proceeded to miss 4 of the next 13 items. At this point, the examiner elected to replace serendipity with experimental control and invited the mother to return, and DL missed 8 of 13 items again. After the mother was asked to leave the second time DL erred on 5 of 13 items. The same day we asked the patient if she had any knowledge of the effect of her mother's presence on her performance. She denied awareness of changes in her performance on the PDRT with her mother present or absent from the testing room.

In summary, this partly serendipitous A-B-A-B design led to the administration of 26 PDRT items with the 30-s delay with the mother present and an equal number with the mother absent. DL was correct on 10 of 26 items with her mother present (38.5%) and 17 of 26 items (65.4%) with her mother absent. The two proportions were compared with the h statistic, a more powerful method of comparing two proportions than chi-square (Cohen, 1988). The result suggested that the patient's performance was worse with her mother observing, $h = .512$, $p < .05$. This constitutes a moderate-sized statistical effect (Cohen, 1988).

Observations and history indicated that DL had dependent personality traits and may have met *DSM-III-R* criteria (American Psychiatric Association, 1987) for dependent personality disorder. This diagnosis was made by a board-

Table 1. Neuropsychological Test Scores.

TEST	Score	
Wechsler Memory Scale-Revised percentiles		
Logical Memory I	81	
Logical Memory II	61	
Rey Auditory Verbal Learning Test		
Total Trials 1-5	57 of 75	
Recall Trials	12 of 15	
Recognition Trials	14 of 15	
Continuous Visual Memory Test percentiles		
Total Score	< 1	
Rey Complex Figure, raw score		
Copy	24.5	
30-Min Recall	15.0	
Boston Naming	50	
	$z = -2.04$	
Controlled Oral Word Association Test percentile	5	
WRAT-R – Reading Level 2, percentile	2	
Wisconsin Card Sort Test, raw scores		
Perseverative Errors	27	
Categories Completed	1	
Trail Making Test, seconds	A-35	B-101
	DH	*NDH*
Finger Tapping	30	25
Grooved Pegboard	134	145
Face-Hand Test, errors	1	0
Finger Agnosia, errors	2	3
Fingertip Number Writing, errors	12	9
Wechsler Adult Intelligence Scale-Revised Scaled and IQ Scores		
Information	6	
Digits	4	
Vocabulary	6	
Arithmetic	4	
Comprehension	5	
Similarities	7	
Picture Completion	8	
Picture Arrangement	5	
Block Design	4	
Object Assembly	6	
Digit Symbol	4	
VIQ	74	
PIQ	72	
FSIQ	72	
Minnesota Multiphasic Personality Inventory-2, *T* scores		
Validity Scales		
L	71	
F	58	
K	65	
Clinical Scales		
1-Hs	63	
2-D	55	
3-Hy	56	
4-Pd	58	
5-Mf	52	
6-Pa	56	
7-Pt	47	
8-Sc	52	
9-Ma	39	
0-Si	48	
Portland Digit Recognition Test Scores: Number correct		
Easy Items	21 of 36	
Hard Items	21 of 36	
Mother present, correct	10 of 26	
Mother absent, correct	17 of 26	

certified psychiatrist who evaluated her during her admission. DL stated that she disagreed with her parents about issues of independence such as driving and taking vacations independently. Despite her stated desire to become more independent from her parents, we observed that she constantly sought their approval, appeared to be reluctant to engage in more independent actvities, and was infantilized by her mother during the hospital stay. Her mother reported that she met four of nine *DSM-III-R* criteria for the disorder and was unsure of a fifth. Reportedly, DL had trouble with everyday decisions and allowed her mother to make important decisions for her. She felt very uncomfortable about being alone and was easily hurt by criticism. The mother was unsure to what degree her daughter had difficulty initiating projects on her own.

DISCUSSION

Our patient had well-established diagnoses of partial complex seizures with a right temporal-lobe EEG focus and right mesial temporal sclerosis, borderline intelligence (probably lifelong) and associated neuropsychological deficits. She may have met criteria for dependent personality disorder and clearly had dependent traits. The latter condition was demonstrated by her living with her parents, reluctance to travel without them, frequent need for their approval, extreme infantilization of DL by the mother during her hospitalization, and other data reported by the mother. The history, EEG, neuroimaging, and neuropsychological findings all suggest an encephalopathy.

Testing with the PDRT suggested that the presence of the mother in the examining room had an additional detrimental effect on performance. Although we did not determine if the observer effects extended to other neuropsychological instruments, in our view the PDRT results adequately documented the alteration in motivational set associated with the mother. DL denied awareness of the effect of her mother's presence on her performance. However, awareness is not an all-or-none phenomenon, and her claim of lack of awareness may not have been totally accurate. We suspect that her dependent personality traits interacted with the situational presence of her mother to produce the results reported here.

The clinical implications of this single-case study are advisory rather than definitive. The results suggest that the practice of many practitioners of excluding significant others from an examination room generally should be continued, except perhaps with young children. (We recognize that testing of young children often proceeds with a parent present). The PDRT and probably other neuropsychological tests may be affected by a variety of person-situation factors. Patients with financial incentives sometimes alter their performance for financial reasons (Binder, 1993b). In addition, some patients with dependent traits may be motivated to perform poorly because they wish to "prove" to a significant other that they are impaired and in need of support and care.

This example of significant other-induced test failure has implications for medicolegal work. In the State of Washington, and perhaps in other jurisdictions, courts have held that individuals may have their legal representative present during neuropsychological examinations, regardless of the wishes of the clinician. Although there are obvious differences between a relationship with a mother and an attorney, one could hypothesize that the presence of an attorney can exert as powerful an effect on client performance as did the presence of the mother of DL. A patient may feel, consciously or unconsciously, that an attorney's assistance or approval is best elicited through maintaining a helpless, dependent role. This role enactment may be exacerbated by the presence of the attorney. Therefore, our data suggest that it is desirable to exclude attorneys in all cases where this dependent role enactment might occur.

It may be of interest to study the effect of the presence of family members with a more extensive, between-subjects experimental design. Pending further research, in our opinion, current knowledge suggests that unnecessary observers who have a significant relationship with the patient generally should be excluded from

the examinations of adult patients because tests are standardized and validated without significant others present in the examination room.

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THE ETHICAL NEUROPSYCHOLOGIST

Presence of Third Parties During Neuropsychological Evaluations: Who Is Evaluating Whom?*

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ABSTRACT

State and federal laws and court decisions that address requests for the presence or absence of third party observers during forensic evaluations are reviewed, as are the legal arguments for both their inclusion and exclusion. Potential sources of interference created by observer's presence during the neuropsychological evaluation are outlined with reference to the Ethical Principles of Psychologists and Code of Conduct of the American Psychological Association, the Specialty Guidelines for Forensic Psychologists: Committee on Ethical Guidelines for Forensic Psychologists, and the Standards for Educational and Psychological Testing. The relevant empirical literature dealing with the phenomenon of social facilitation is also presented. Guidelines are offered for use by the neuropsychologist who receives a request for observation by a third party.

LEGAL JUSTIFICATION FOR THIRD PARTY OBSERVERS

The development of ethical, legal, and clinical issues associated with the presence of third persons during the neuropsychological evaluations of litigants has evolved from humble, if not benign, beginnings. The early cases that have formed the basis of some of today's court decisions are the product of tort litigation as it used to exist. At that time, evaluations were usually performed by orthopedic surgeons or neurologists in automobile accident or premises liability ("fall down") cases. When plaintiff's counsel sought to attend, there were few legal grounds for objection to his/her presence since the results of x-rays, tests of reflexes, EEGs, and computerized imaging were not readily subject to influence by third parties. Attorneys, especially those who feared that the examiner would elicit incriminating information concerning how the injury occurred, or who felt that the exam would otherwise be conducted in a biased manner, were usually permitted to attend.

Bear in mind that in this early period, most jurisdictions took a dim view of psychological injuries, rendering it difficult for such claims to be pursued or won. As a result, very few courts were called upon to address the issue of third party presence during psychological evaluations. Describing the state of the law through the mid 1940s, one author stated: "(T)he position of most courts...has been that (damages for) mental anguish were recoverable only as 'parasitic' to a physical injury or a traditional tort" (Bounds, 1985, pp. 1002-1003). This line of reasoning was based upon judicial concern that emotional and psychological injuries were too metaphysi-

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cal, easily faked, speculative, and difficult to verify (Keeton, 1984). It was feared that recognition would lead "not only to fictitious claims, but to litigation in the field of trivialities and mere bad manners" (Keeton, p. 56).

Obviously, the rules have changed. Litigation has become more sophisticated as malpractice, product liability, civil rights, and sexual harassment cases have risen to occupy increasing space on court calendars. These claims, in addition to those associated with automobile accidents and premises liability, have been associated with allegations of injuries ripe for neuropsychological evaluation. Also, proof of damages has become more scientific.

In this context, psychological injuries have found increased acceptance, as the Courts and the public have acknowledged the fact that they may be severely debilitating. In addition, such injuries have become more verifiable. These factors, along with the development and professional acceptance of state of the art testing techniques and the publication of standardized diagnostic criteria in the *Diagnostic and Statistical Manual of Mental Disorders* (1952, 1968, 1975, 1987, 1994) have played major roles in the change of judicial philosophy. Equally important has been the general realization that psychological injuries deserve as much legal consideration as physical harm when caused by negligent or intentional acts. Today, of course, psychological injuries are compensable in all jurisdictions within the United States.

Current Legal Status

The rules of discovery in New York State and virtually every other American jurisdiction permit an adverse party to require the examination of a litigant who has placed his/her mental status or physical condition in issue. The theory, of course, is that an independent evaluation of those who claim an injury or disability will aid the Court in its search for truth. As a result, mental health experts, and with increasing frequency, clinical neuropsychologists, are called upon to evaluate plaintiffs who claim psychological and/or neuropsychological injuries.

The clinical neuropsychologist is confronted with the issue of whether the lawyer or other representative of the person being examined (e.g., paralegal, nurse, neuropsychologist, or other person) should be present during the evaluation. In lieu of actual observation, plaintiff's counsel may request that the evaluation be videotaped or otherwise recorded. The Courts in almost every jurisdiction have attempted to balance the conflict between the desire of a litigant to have counsel present to ensure a fair examination versus the disruption that the presence of a third party may cause.

A review of the current case law in New York and in almost all other jurisdictions reveals that Courts examine requests to exclude an observing attorney on a case-by-case basis. Illinois stands as an exception because Section 5/2-1003(d) of the *Code of Civil Procedure* (1982) guarantees the plaintiff the right to have an attorney or other person present "at a physical or mental examination"[1] (p. 174).

In many, but certainly not all, state law jurisdictions there is an underlying assumption that third party attendance should be permitted. As previously noted, this attitude has been based upon the long standing practice of attorneys who have regularly accompanied their clients to physical examinations (*Jakubowski v. Lengen*, 1982). Their attendance has rarely been successfully challenged. In addition, many judges have enunciated a philosophy that "The information about the way the examination was conducted may be helpful on cross-examination. Moreover, the practice (of counsel being present) reduces the possibility of misleading medical reports" (Weinstein, Korn, & Miller, 1994, pp. 31-566).

Other courts have suggested the following:

> A physician selected by defendant to examine plaintiff is not necessarily a disinterested,

[1] "Whenever the defendant in any litigation in this State has the right to demand a physical or mental examination of the plaintiff to statute of Supreme Court Rule, relative to the occurrence and extent of injuries or damages for which claim is made, or in connection with the plaintiff's capacity to exercise any right plaintiff has, or would have but for a finding based upon such examination, the plaintiff has a right to have his or her attorney, or such other person as the plaintiff may wish, present at such physical or mental examination."

> impartial medical expert, indifferent to the conflicting interests of the parties. The possible adversary status of the examining doctor for the defense is under ordinary circumstances, a compelling reason to permit plaintiff's counsel to be present to guarantee, for example, that the doctor does not interrogate the plaintiff on liability questions in order to seek damaging admission (*Jakubowski v. Lengen*, 1982, p. 400).
>
> On the other hand, it is not unusual for a judge to warn: This is not to suggest that counsel may interfere with the conduct of the physical examination or that the examining room should be turned into a hearing room with lawyers and stenographers from both sides participating. The lawyer's role...should be limited to protection of the legal interests of his client apart from actual physical examination in which he has no role (*Jakubowski v. Lengen*, 1982, p. 401).

While the rationale for permitting the presence of an observer, as outlined above, may be justifiable with respect to a routine medical examination, they may not be as applicable to neuropsychological evaluations. The presence of a third party during such an exam may effect its results. Because they rely less upon rapport with the examiner, X-rays, EEGs, and other tests that were the basis for earlier court decisions to permit third party observers are obviously less easily influenced. The subtleties of the neuropsychological evaluation process may be more susceptible to influence if the litigant (or the psychologist) is thinking about the lawyer's presence or if (s)he is receiving nonverbal or more overt feedback from counsel or other third party observers. Sometimes such cues may even be unintentionally and unknowingly communicated.

State Courts

Despite a general inclination to permit the presence of an attorney or other third party, the state courts have exercised their oversight of discovery in a number of different ways. In some jurisdictions, the rule is that an attorney may be present unless a valid reason to the contrary is shown (*Tietjen v. Department of Labor & Industries*, 1975). Other state courts have held that there is no right to the lawyer's presence; however, given a proper reason, discretion may be exercised to permit him to attend (*Vinson v. Superior Court*, 1987). Of the remaining jurisdictions, some judges view each case separately (*Bartell v. McCarrick*, 1986) and other Courts have issued hybrid decisions. In *Mohr v. District Court* (1983), for example, the Montana Supreme Court permitted the attorney to be present but only during the history-taking portion of a neurological examination.

No matter what the baseline position of the Courts may be in any particular state, the rule is usually stated that when the presence of the third party would interfere with the evaluation, that party may be excluded. As a result, it is important that when the clinical neuropsychologist anticipates a compromised examination, he or she should alert and provide strong documentation of his/her concerns to the attorney who requested the evaluation. It may be incumbent upon the attorney to supply that information, usually in affidavit form, along with relevant precedent, to the judge who is in charge of discovery. References and copies of applicable ethical standards and pertinent research should also be submitted. Without such information, there is little chance that the Court will exclude counsel.

The importance of a thorough presentation to the Court cannot be overstated. *Galaxia Barraza v. 55 W. 47th Street Company* (1989) involved posttraumatic stress disorder allegedly arising from the rape of a 6-year-old. The Court upheld exclusion of the plaintiff's attorney based upon two affidavits from the examining psychiatrist. In this case, it was found that the sensitive nature of the inquiry might be compromised by the presence of a third party. A review of the Court's decision reveals that the supporting affidavits were vital to this decision. It should be noted, however, that the Court permitted audiotaping of the exam as the method of protecting the litigant from any bias or abuse by the examiner.

On the other hand, in *Jakubowski v. Lengen* (*op cit*) (1982), the trial Court directed that a physical examination of the litigant be held without the attorney's presence. The New York

Appellate Division, however, overturned this decision because there had been no finding that the attorney's presence would interfere with the evaluation. This may well have been due to the fact that no affidavits had been submitted to demonstrate the need for exclusion. Similarly, in *Lamendola v. Slocum* (1989), the Appellate Division refused to permit a neurological examination in the *absence* of a third party observer because the Court found that the record contained no evidence to support a finding that a third party would interfere with the examination. It is interesting to note that the Court prohibited plaintiff's efforts to videotape the evaluation, leaving that technique to be used only in "special and unusual circumstances" (p. 781).

The use of videotape was authorized in *Mosel v. Brookhaven Hospital* (1986), a malpractice case where the plaintiff was "semicomatose." The Court found that plaintiff's condition precluded his ability to describe what occurred during the examination. As a result, it was felt that the plaintiff's interests could be protected only by the use of videotape. The Court also concluded that this procedure would not affect the evaluation, noting that "... there are no allegations contained in any Affidavit by a physician or anyone else indicating that videotaping would be intrusive to an examining physician" (p. 75). This ruling highlights the importance of the submission of an affidavit or other strong proof by the examiner, and is an example of the rare type of cases where videotape will be permitted.

Federal Court

Rule 35(a) of the *Federal Rules of Civil Procedures* (1991) states:

> When the mental or physical condition (including the blood group) of a party or of a person in the custody or under the legal control of a party, is in controversy, the court in which the action is pending may order the party to submit to a physical or mental examination by a suitably licensed or certified examiner or to produce for examination the person in the party's custody of legal control. The order may be made only on motion for good cause shown and upon notice to the person to be examined and to all parties and shall specify the time, place, manner, conditions, and scope of the examination and the person or persons by whom it is to be made (p.145).

Under most circumstances, in contemporary federal practice, the parties agree to the examination without the need for a Court Order.

While there is a split of authority, the prevailing interpretations of Rule 35(a) make it clear that in federal litigation, a party is not entitled to have an attorney present during the evaluation, except under unusual circumstances (*Federal Procedure Lawyer's Edition*, 1994). The Courts have articulated a fear that the lawyer's presence might tend to transform the interactions into an adversary proceeding (*McDaniel v. Toledo, Peoria, and Western Railroad Co.*, 1983) or compromise examinations "which rel(y) upon unimpeded one-on-one communication between doctor and patient" (*Brandenberg v. El Al Airlines*, 1978, p. 546). In *Tomlin v. Holecek* (1993), Judge Erickson also noted that the taping of the examination was not acceptable since the plaintiff's health-care providers were not subject to similar requirements. This level playing field argument could as easily apply to the presence of counsel. Other Courts have also pointed out potential ethical violations[2] incurred by an attorney who becomes a potential witness in his client's case (*DiBari v. Armadora*, 1989).

The prohibition noted above is not absolute. Federal Courts have used their discretion to permit attendance by third parties in cases where "good cause" was demonstrated. In *Zabkowicz v. West Bend Co.* (1984), a sexual harassment case, the plaintiff was allowed to have her attorney, a third party, or recording device present at a psychiatric examination. This Court noted plaintiff's allegation of severe emotional distress and the fear that the examination could eas-

[2] *Disciplinary Rule 5-102 (McKinney's Consolidated Laws of New York, 1992)* states "If, after undertaking employment in contemplated or pending litigation, a lawyer learns or it is obvious that the lawyer ought to be called as a witness on behalf of the client, the lawyer shall withdraw as an advocate before the tribunal, except that the lawyer may continue as an advocate and may testify in the circumstances enumerated in DR 5-101(b) (1) through (4)."

ily become a deposition. Due to the specific circumstance of the case, the judge felt that the defendant might unfairly receive an advantage from the unsupervised evaluation. The plaintiff in *Warrick v. Brode* (1969) was allowed to have another physician present, but only as an observer. The Court specifically stated that plaintiff's counsel could not be present. It was the judge's opinion that "(t)he examining doctor is, in effect, an officer of the court performing a non-adversary duty" (p. 428). He felt the attorney's presence would taint the objective inquiry with partisanship and place him in danger of becoming a witness.

In reviewing both state and federal cases, it is clear that the Courts usually reserve the discretion to determine who is to be present during neuropsychological or other evaluations. Therefore, it is incumbent upon the clinical neuropsychologist to provide counsel with the information necessary for the Judge to fully and fairly review these issues.

STANDARDIZATION IN JURY INSTRUCTION AND DELIBERATION PROCESS

In American state and federal courts, judges closely follow guidelines designed to ensure that all juries are given the same set of instructions in every case. The use of standardized jury instructions (Committee on Pattern Jury Instructions, 1974; Devitt, Blackmar, & O'Malley, 1990) is intended to assure that every litigant is treated comparably and fairly. In short, many courts utilize a uniform set of instructions that judges read when charging the jury. In this way, the same rules are presented to those who must weigh evidence and apply the law. The use of such standard practices in law is analogous to the standardized administration of neuropsychological tests.

During the 1950s, researchers obtained permission to tape-record several civil jury deliberations for research purposes. According to Hans (1992), when this became public knowledge, the investigators were censured by the Attorney General of the United States. Furthermore, the investigators were required to explain themselves before the Subcommittee on Internal Security of the Senate Judiciary Committee. As a result, more than 30 jurisdictions have passed laws that forbid the recording of the deliberations of juries. It seems clear that the courts and their respective legislative bodies take a dim view of the presence of "third" parties during jury deliberations, thereby assuring that their standardization process is protected from uncontrolled outside influences.

ISSUES RAISED BY THE PRESENCE OF THIRD PARTY OBSERVERS DURING FORENSIC NEUROPSYCHOLOGICAL EVALUATIONS

The Ethical Principles of Psychologists and Code of Conduct (American Psychological Association, 1992) govern the behavior of all members of the American Psychological Association (APA) and may be applied to psychologists who are non-members of the APA by state psychology boards, the courts, or other public bodies.

A review of the Ethical Principles of Psychologists and Code of Conduct with regard to the issue of the presence of third party observers during neuropsychological evaluations raises several important issues for consideration. Any expert in the field of psychology, including clinical neuropsychology, must acknowledge as authoritative the following, if the expert is practicing at or above the standard of care: (1) *Ethical Principles of Psychologists and Code of Conduct* (1992); (2) *Specialty Guidelines for Forensic Psychologists* (1991) and; (3) *Standards for Educational and Psychological Testing* (1985). In addition, the manual for any test the expert utilizes should also be considered authoritative (e.g., WAIS-R or WISC-III). These sources define the standard of care and provide a foundation for arguing that a third party observer should be excluded from the neuropsychological evaluation.

Standardized Administration

The overriding issue for the neuropsychological practitioner is proper test administration and

interpretation. At the core of this issue is knowledge of the normative sample and the standardized procedures for administering the test. According to the *Standards for Educational and Psychological Testing* (1985), every test manual must describe the standardization sample and the methods for administering the test in a *standardized* manner. A standard administration of a test, by definition, must adhere to the procedures outlined in the test manual. If administration of the test does not follow these procedures, then it is inappropriate to compare the results of the examinee to normative results from the standardization sample that received the standard administration. Thus, any factor that compromises the standard administration of a test calls into question the validity of the test findings based on the non-standard administration of the test (Kaplan & Saccuzzo, 1993).

As such, the presence of a third party during a neuropsychological examination poses a serious risk to the conduct of a *valid* evaluation. Although there are times when it may be clinically necessary to deviate from the standard administration of a test (e.g., use of sign language for instructing a person with a hearing impairment), such modifications may invalidate the direct application of the standardization norms. The decision to deviate from the standard administration of a test should rest solely with the neuropsychologist who is ultimately responsible for conducting a scientifically valid and clinically meaningful evaluation.

The testing environment should also be free from unnecessary distractions. Although this is implicit in every manual that accompanies a test instrument, it is explicitly stated in some manuals. For example, the Wechsler Intelligence Scale for Children-III (Wechsler, 1991) includes the following instructions:

> To minimize any potential for distractions or interference, conduct the test in a quiet, adequately lit, well-ventilated room. As a rule, no one other than you and the child should be in the room during testing. On rare occasions, at your discretion, an accompanying adult may be permitted to remain in the room to facilitate testing. The accompanying adult must be silent and out of the child's view during the test (p.34).

The manual also notes that non-standardized administrations, such as those that occur with third parties present, render the norms invalid: "Changes in the phrasing or presentation of a test item, modifications of time limits, or other deviations from standard subtest directions could reduce the validity of test results" (p.33). Similar caveats are noted in the Wechsler Adult Intelligence Scale-R (Wechsler, 1981) and the Memory Assessment Scales manuals (Williams, 1991). The standardized procedures for administration and scoring specified by the test publisher should be carefully followed.

Test Security and Misuse of Tests

When conducting a neuropsychological evaluation in the presence of a third party, the neuropsychologist may have limited, if any, control over how the content of the evaluation will be used. A major concern for the clinical neuropsychologist should be to maintain the integrity of the neuropsychological tests. This may be impossible, however, since the third party observer can observe the evaluation, record questions and answers, and even make notes about the physical characteristics of the actual neuropsychological assessment instruments and equipment. The information gleaned by the third party observer may be misused in the future by "preparing" or "coaching" another litigant as to how to perform or not perform on specific tests.

Another concern for the clinical neuropsychologist is that the third party observer may incorrectly interpret the plaintiff's neuropsychological performance. For example, a plaintiff may have a significantly impaired score on the Tactual Performance Test with the nondominant hand. The third party observer may interpret this as an indication of dysfunction in the contralateral cerebral hemisphere when, in fact, the poor performance is due to an orthopedic injury to that upper extremity.

Neuropsychologist as Third Party Observer?

Third party observers pose a threat to the validity of any neuropsychological evaluation based upon the professional practice issues delineated

above. The clinical neuropsychologist asked to serve as a third party observer must consider this request in the context of these ethical and professional standards. Moreover, judicial rulings that permit another professional to be present during a medical examination may not be applicable to the neuropsychological evaluation (*Warrick v. Brode*, 1969). As noted earlier, the procedures employed during a neuropsychological evaluation may be more susceptible to influence than those employed during a medical examination. In fact, a phenomenon called social facilitation, may pose an important threat to the validity of a neuropsychological evaluation in the presence of a third party observer.

SOCIAL FACILITATION

Social facilitation has been described and studied by social psychologists since the late 1800s. It is a very basic form of social influence that has been demonstrated in both humans and animals. Social facilitation refers to the effect(s) of the presence of a person(s) on an individual's task performance. Specifically, individuals working in the presence of another person will typically exhibit a better level of performance on tasks that are easy or well-learned than if they were working alone (Zajonc, 1965). If the task is difficult or novel, the presence of another will typically have the opposite effect; that is, the level of performance will be worse than if he or she were working alone (for reviews see Clayton, 1978; Geen, 1989; Geen & Gange, 1977; Guerin, 1983; and Tolman, 1968).

Theorists disagree as to the process that mediates social facilitation. This effect has been attributed to an increase in arousal associated with the unpredictability (Zajonc, 1965, 1980) or threat posed by other persons (Guerin & Innes, 1982), evaluation apprehension (Cottrell, 1972; Weiss & Miller, 1971), or the distraction from task performance that is associated with the presence of other persons (Sanders & Baron, 1975).

Other theorists (Carver & Scheier, 1981; Wicklund & Duval, 1971) have attributed social facilitation to the individual's heightened level of self-awareness, elicited by the presence of an observer, that becomes the source of a discrepant perspective between one's desired versus actual performance. The individual's attempt to reduce this discrepancy is responsible for the noted effects on task performance. The desire to maintain or develop a public image of competence has also been described as a mechanism through which the presence of an observer influences task performance (Bond, 1982).

Finally, some theorists have suggested that the presence of others affects the way in which information is processed; it is this altered state of information processing that may result in social facilitation (Baron, 1986; Manstead & Semin, 1980). Despite disagreement over the explanation of the factor(s) underlying social facilitation, there is consensus that people do not perform activities in the company of others as they would if alone.

The literature on social facilitation provides empirical evidence to suggest that the presence of an observer(s) alters cognitive/motor performance. Table 1 presents a summary of this empirical evidence. Studies were categorized according to the general aspect of functioning involved in the performance of the specific task used in each investigation (e.g., abstraction). Table 1 shows that typical tasks used in these investigations involve motor ability, auditory comprehension, concept formation, memory, visual tracking, and mental tracking. Many neuropsychological instruments assess functioning in one or more of these areas.

Cognitive maturity does not appear to be a prerequisite for social facilitation as it has been observed in groups of individuals whose cognitive capabilities are compromised or not fully developed (e.g., grade school children, children with mental handicaps). Additionally, the magnitude of the social facilitation effect varies with the size of the observing audience. The greater the number of observers, the larger the impact these observers have on the examinee's performance (Knowles, 1983; Latane, 1981; Mullen, 1983).

The social facilitation literature provides a theoretical framework to support arguments that the presence of a third party observer(s) during

Table 1. Research Demonstrating Social Facilitation Effects on Task Performance.

Author(s)	N	Task	−/+[a]	p
Abstraction				
Aiello & Svec (1993)	72 undergraduates	anagram solving	−	< .05
Geen (1985)	60 undergraduates	anagram solving of high test anxiety subjects	−	< .05
Laughlin & Jaccard (1975)	270 undergraduates	concept attainment	−	< .05
Laughlin & Wong-McCarthy (1975)	256 undergraduates	concept attainment	−	< .01
Comprehension				
Beatty (1980)	42 undergraduates	auditory comprehension	−	< .05
Visual perception and construction				
Carver & Scheier (1981)	40 undergraduates	speeded prose copying	+	< .01
Guerin (1989)	40 undergraduates	speeded letter copying	+	< .006
Haas & Roberts (1975)	45 undergraduates	mirror drawing a 6-point star following training	+	< .001
	45 undergraduates	mirror drawing a 6-point star without prior training	−	< .001
Innes & Young (1975)	6 undergraduates	mirror drawing a 12-point star	−	< .001
Language				
Rittle & Bernard (1977)	18 undergraduates	written word construction	+	< .05
Memory/learning				
Baron, Moore, & Sanders (1978)	55 undergraduate	paired associates-easy (i)	+	< .05
Berkey & Hoppe (1972)	80 undergraduates	paired associates-hard (i)	−	< .05
Bond (1982)	72 undergraduates	paired associates-hard (i)	−	< .005
Cottrell, Rittle, & Wack (1967)	132 undergraduates	paired associates-easy (i)	+	< .025
		paired associates-hard (i)	−	< .025
Deffenbacher, Platt, & Williams (1974)	32 undergraduates	paired associates-hard (i)	−	< .01
		paired associates-hard (d)	+	< .001
Geen (1971)	48 undergraduates	paired associates-hard (i)	−	< .05
		paired associates-hard (d)	+	< .05
Geen (1973)	160 undergraduates	paired associates-hard (i)	−	< .025
		paired associates-hard (d)	+	< .01
Geen (1979)	80 undergraduates	paired associates-hard (i) of subjects w/ low expectations for task performance	−	< .025
	48 undergraduates	paired associates-hard (i) of subjects w/ low expectations for task performance	−	< .05
		paired associates-hard (i) of subjects w/ high expectations for task performance	+	< .05
Geen (1983)	60 undergraduates	paired associates-hard (i)	−	< .05
		paired associates-easy (i)	+	< .05
Guerin (1983)	80 undergraduates	paired associates-hard (i)	−	< .05
Hanawalt & Ruttiger (1944)	20 undergraduates	incidental story recall	+	< .01
Houston (1970)	72 undergraduates	retroactive inhibition of paired associates	−	< .01
Sanna & Shotland (1990)	120 undergraduates	word list recall of subjects w/ low expectations for task success	−	< .05
		word list recall of subjects w/ high expectations for success	+	< .03
Quarter & Marcus (1971)	42 undergraduates	digit recall	−	< .01

Table 1. Research Demonstrating Social Facilitation Effects on Task Performance (continued).

Table 1. Research Demonstrating Social Facilitation Effects on Task Performance (continued).

Author(s)	N	Task	–/+[a]	p
Motor				
Bell & Yee (1989)	33 karate students	karate kick accuracy	–	< .05
	M age = 23.9	low skill students	+	< .001
Bowman & Dunn (1982)	30 educable mentally retarded children	number of sit-ups	+	< .001
Kohfield & Weitzel (1969)	85 adults	treadmill performance	–	< .05
Sasfy & Okun (1974)	96 undergraduates	ball rolling	+	< .001
Strube, Miles, & Finch (1981)	60 adults	running speed	+	< .01
Worringham & Messick (1983)	36 adults	running speed		
Mental/visual tracking				
Miyamoto (1979)	60 undergraduates	stylus maze learning	–	< .05
		stylus maze accuracy	–	< .05
Rajecki, Ickes, Corcoran, & Lenerz (1977)	60 undergraduates	stylus maze speed	+	< .05
		stylus maze accuracy	+	< .02
Shaver & Liebling (1976)	30 undergraduates	stylus maze accuracy	–	< .05
Schmitt, Gilovich, Goore, & Joseph (1986)	45 undergraduates	name typing[b]	+	< .02
		name/number typing[c]	–	< .05
Visuomotor				
Gore & Taylor (1973)	60 undergraduates	rotary pursuit performance at 45 rpm	–	< .05
Guerin (1986)	39 undergraduates	rotary pursuit performance	+	< .01
Innes & Gordon (1985)	60 undergraduates	guiding ring across a colling wire	–	< .05
Lombardo & Catalano (1975)	72 undergraduates	rotary pursuit performance at 60 rpm	–	< .05
Lombardo & Catalano (1978)	61 undergraduates	rotary pursuit performance at 60 rpm	–	< .001
Miller, Hurkman, Robinson, & Feinberg (1979)	50 undergraduates	rotary pursuit performance at 30 rpm	+	< .05
		rotary pursuit performance at 60 rpm	–	< .01
Miscellaneous				
Fedor, Rowland, & Porac (1985)	96 undergraduates	videogame	+	< .001
Fouts (1980)		48 ten- and eleven-year olds reaction time	+	< .025
Kimble & Rezabek (1992)	46 undergraduates	videogame	–	< .05
Putz (1975)	48 undergraduates	signal detection	+	< .01
Robinson-Staveley & Cooper (1990)	40 undergraduates	computer game performance of subjects w/ low expectations of success	–	< .05

Note. (i) indicates an immediate recall task whereas (d) indicates a delayed recall task.
[a] "+" indicates that task performance in the presence of an observer was facilitated when compared to that in the absence of an observer. "–" indicates that task performance in the presence of an observer was inhibited when compared to that in the absence of the observer. [b]The task required subjects to type their name. [c]The task required subjects to type their names backward with a number between each letter.

a neuropsychological evaluation may alter the results of the evaluation. Therefore, it is reasonable to suspect that the performance of an individual with or without a brain injury on neuropsychological tests is vulnerable to social facilitation effects. Performance on tasks involving simple or well-learned skills may be atypically elevated when a third party observer is present for the neuropsychological evaluation while tasks that are difficult may be performed more poorly. Consequently, the results of the evaluation will provide a *misleading* representation of the individual's current level of functioning.

A recent case report illustrates how a third party observer may effect neuropsychological test performance. Binder and Johnson-Greene (1995) described the effects of an observer (i.e., patient's mother) on the test performance of her 26-year-old daughter who had medically intractable epileptic seizures, developmental cognitive deficits, and dependent personality traits. Using an A-B-A-B single-case design, the researchers found that the patient's performance on the Portland Digit Recognition Test (PDRT; Binder, 1993) was *significantly worse* in her mother's presence. The PDRT is commonly used to assess malingering on neuropsychological evaluations. Overall, the patient was correct on 65.4% and 38.5% of the items when alone versus in the presence of her mother, respectively. Binder and Johnson-Greene suggested "... that her dependent personality traits interacted with the situational presence of her mother to produce the results..." (p. 77). The patient may have been motivated to perform poorly in front of her mother to remain consistent with her usual demeanor, that of an ill person.

This case study suggests that test performance can be influenced by an observing third party and is consistent with social facilitation theory in that the presence of an observer(s) typically inhibits performance on novel tasks and facilitates performance on well-learned tasks. Since the PDRT is a novel task, the patient's poor performance in the presence of her mother is consistent with the social facilitation literature.

A potential compromise that has been suggested to deal with the issue of a third party observer is to use a one-way mirror or videocamera; however, the social facilitation literature contains some evidence that even an unobstrusive observer can influence task performance. Table 2 presents studies that have examined the effect of observation of testing through a one-way mirror or videocamera. Those studies that compared the effect of a physically present passive observer on task performance, observation through a one-way mirror, and the use of a videocamera found no significant differences among the different formats.

Although we have focused on the vulnerability of the neuropsychological evaluation to social facilitation effects, aspects of the routine medical examination (e.g., EEG, blood pressure) may be susceptible to this very basic form of social influence as well. Examination of the potential role of social facilitation in medical examinations awaits further investigation.

RECOMMENDATIONS FOR NEUROPSYCHOLOGICAL PRACTITIONERS

Neuropsychologists should respond to the request/demand for a third party observer(s) to be present during formal neuropsychological testing in a manner consistent with the professional and ethical guidelines of the profession. To this end, we recommend that the clinical neuropsychologist initially outline for the retaining party (i.e., the party who has requested the evaluation) the professional and ethical issues, mentioned previously, that are raised by the presence of a third party observer(s). In addition, the phenomenon of social facilitation should be explained with emphasis on the likelihood that the examinee's neuropsychological deficits may appear worse than they actually are, whereas the examinee's strengths may appear better than they actually are.

If these arguments fail to resolve this issue, then the neuropsychologist may consider refusing to conduct the evaluation. Of course, this may be the opposing counsel's covert agenda. More important, this option could lead to a situation in which the practice of clinical neuropsychology in forensic arenas is dominated, due to the selective pressures of a subset of the local

Table 2. Social Facilitation with Videotaping and One-Way Mirror.

Author(s)

Table 2. Social Facilitation with Videotaping and One-Way Mirror.

Author(s)	Type of Observation	Task	−/+[a]	p
	computer monitoring	or anagrams solving	−	< .05
Aiello & Svec (1993)	physically present observers	difficulty paired associates learning	−	< .01
	one-way mirror	3-syllable recall	−	< .05
Criddle (1971)	one-way mirror	semantic clustering	−	< .05
Ganzer (1968)	one-way mirror	during wordlist recall	+	< .05
Seta, Donaldson, & Wang (1988)		paired associates-easy		
	one-way mirror or		−	< .025
Musick, Beehr, & Gilmore (1981)	physically present observer	paired associates-hard (i)	+	< .01
	videocamera or physically	paired associates-hard (d)	+	< .01
Geen (1973)	present observer	visual signal detection		
	videocamera,			
Putz (1975)	one-way mirror, or physically present			
	observer			

Note. (i) indicates an immediate recall task whereas (d) indicates a delayed recall task.
[a] "+" indicates that task performance in the presence of an observer was facilitated when compared to that in the absence of an observer. "−" indicates that task performance in the presence of an observer was inhibited when compared to that in the absence of the observer.

legal community, by neuropsychologists who are neither the most qualified nor the most ethically responsible practitioners. Although the court may rule that a third party has the right to be present during a neuropsychological evaluation, the independent neuropsychological practitioner cannot be ordered to conduct the evaluation.

There is also the possibility that you may be asked to have the neuropsychological evaluation observed via a one-way mirror or to have the evaluation videotaped. The data presented in Table 2 suggests that these alternatives to third party observers may not be immune to the effects of social facilitation. Furthermore, videotaping raises a number of professional and ethical issue regarding test security, abuse of test instruments, allowing testing material to become part of the public domain, or to be used by third parties for purposes unrelated to the matter at hand.

If the neuropsychologist elects to conduct the neuropsychological evaluation in the presence of a third party, then all parties should understand that the report will contain a separate section that will outline your impressions and observations of the *third party.* This section will also contain a discussion of unusual and not readily explainable differences between current and previous test findings obtained without the confounding factor of a third party observer. For example, if the previous report indicates that the examinee's performance on the Seashore Rhythm Test and Trail Making Test-Part B subtests of the Halstead-Reitan Neuropsychological Test Battery for Adults (Reitan & Wolfson, 1993) was "normal" or "within normal limits" but these same tests resulted in Neuropsychological Deficit Scale Scores of 2 (mild to moderate impairment) and 3 (severe impairment) on your evaluation, then it would not be unreasonable to postulate that your test data were, to some degree, adversely impacted by social facilitation induced by the presence of the third party observer.

The inclusion of a section labeled "Third Party Observers" might be routinely included in all forensic neuropsychological reports. If no observers were present, this should be indicated with the caveat that the test results do not have to be interpreted with the potential impact of this factor in mind. This practice has the benefit of familiarizing the legal community and clinical neuropsychologists about third party observer issues.

If initial attempts to exclude third party observers do not succeed, then the retaining attorney may want to prepare an affidavit on this matter for consideration by a judge. There are several factors to consider with regard to affidavits. First, do not underestimate the potential support that neuropsychologists may be able to obtain from their colleagues both locally and nationwide regarding this issue (McCaffrey, Fisher, & Gold, 1994). Second, something akin to a capitated contract has been imposed upon the legal community by some insurance companies: Specifically, a number of insurers may pay an attorney a fixed fee to handle a case. As such, additional time and expenditure involved in preparing affidavits are expensed against the fixed fee, as is the time in court arguing the issue. This may create an economic disincentive among some members of the legal community to pursue the resolution of this matter through these means, especially when such legal arguments must be made on a case-by-case basis.

Although judges will review affidavits and articles, such as this one, when deliberating about the issue of third party observers, decisions are made on a case-by-case basis. In other circumstances, judges frequently look to policy statements by professional organizations. In our attempts to address this issue on a local level in New York State, we have requested that the National Academy of Neuropsychology and Division 40 of the APA consider a policy statement on this issue. In addition, we have requested that the Testing Standards Revision Project, Science Directorate of the American Psychological Association consider addressing this issue as they revise the *Standards for Educational and Psychological Testing.*

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Third Party Observers: Why All the Fuss?

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ABSTRACT. Following a brief discussion of the emergence of third party observation as an issue in neuropsychology, this article reviews the social psychological theory of social facilitation. Social facilitation refers to the impact of another person, whether as an observer or a performer of the same activity, on an individual's performance. Both performance enhancements and impairments can be caused by this phenomenon. The article concludes with a review of the empirical studies that have demonstrated that a third party observer significantly impacts an individual's performance on some neuropsychological tests.

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The issues raised about the presence of a third party observer during neuropsychological testing were first formally addressed a decade ago at the annual meeting of the National Academy of Neuropsychology (NAN) where a special topics workshop entitled "Presence of Third Party Observers During Neuropsychological Evaluations: Who Is Evaluating Whom?" was presented by two clinical neuropsychologists and an attorney (McCaffrey, Fisher, & Gold, 1994). The workshop focused on the existing professional guidelines and factors to be considered by the clinical neuropsychologist faced with the request for a third party observer to be present during neuropsychological testing. This involved a discussion of the pertinent Ethical Principles of Psychologists and Code of Conduct (American Psychological Association, 1992), the relevant sections from the *Standards for Educational and Psychological Testing* (AERA, APA, & NCME, 1999) and the Specialty Guidelines for Forensic Psychologists (1991). The social psychological literature dealing with the phenomena of "social facilitation" was reviewed as it applied to studies of recognition memory and free recall. The seminal clinical case report by Binder and Johnson-Greene (1995) was still in press in *The Clinical Neuropsychologist*; however, it was widely available as a preprint and was used to highlight the link between the social psychological studies on social facilitation and clinical neuropsychological practice. Lastly, legal issues pertaining to requests for a third party observer to be present were examined, including the Federal Rules of Civil Procedure (2001) and the New York Civil Practice Law and Regulations (CPLR, 2003) since the presenters practiced in New York State.

When Mr. Gold had completed his comments on the legal issues and third party observers, the panel opened the floor to questions from the audience for the remaining 45 minutes. The room size was typical for a special topic workshop at NAN, but there was standing room only. Among those in attendance were Antonio E. Puente, PhD, and Jeffrey T. Barth, PhD, both of whom commented that the profession needed to address this issue formally. The questions, comments and discussions among all of those in attendance served as catalysts that initiated practice suggestions in the clinical neuropsychological literature, as well as the impetus for additional research and, ultimately, the development of official policy statements by the National Academy of Neuropsychology

(Axelrod et al., 2000; *http://nanonline.org/paoi/thirdparty.shtm*) and, later, by the American Academy of Clinical Neuropsychology (Hamsher, Lee, & Baron, 2001; *http://www.the AACN.org/position_papers/tc154433.pdf*).

While much has transpired over the past 10 years, clinical neuropsychological practitioners continue to confront many of these same matters in their daily practice. This special issue of the *Journal of Forensic Neuropsychology* is intended to provide an overview of the salient issues practitioners must consider when faced with requests for third party observers, as well as an update and review of the research in this area since that initial NAN meeting in 1994. In addition, we will present original research findings that bear directly on the issue of third party observers. Finally, we hope that this special issue will provide clinical neuropsychological practitioners with an important resource that will assist them in their daily practice. Also, this issue can aid in the education of the legal community on the myriad of issues concerning the presence of a third party observer during neuropsychological testing, such as the caveats that must be included when interpreting neuropsychological test data from evaluations contaminated by the presence of a third party observer.

AN OVERVIEW OF SOCIAL FACILITATION

In the 1990s, requests for the physical presence of third party observers during neuropsychological testing and professional concerns regarding whether such observers would impact the examinee's performance on testing led us to examine the social psychology literature and, specifically, social facilitation theory. The impact of the presence of others on an individual's performance has been an area of scientific study in social psychology for more than a century. Beginning in the late 1800s, psychologists began to recognize that an individual's task performance could be altered just by the inclusion of other individuals simultaneously performing the same task. This was first reported by Triplett in 1898 who found that cyclists rode faster when racing in groups than when racing alone (Triplett, 1898). Subsequent research found that, in addition to the presence of others engaged in the same activity, referred to as "co-actors" in the social psychology literature, the presence of an *observing audience* could alter an individual's performance. An early documentation of the influence of an observing audience was provided by Meumann [1904, as cited in Cottrell (1972)].

Using a finger ergograph, he found individuals pulled a finger-weight a greater distance in the presence of an observer than when alone. Additional studies followed providing converging evidence that the presence of others was a salient social force. This form of social influence eventually became known as *social facilitation.* This term was adopted because the earliest studies had shown that the presence of an audience was associated with performance increments (Aiello & Douthitt, 2001). A more precise term, however, would be *social facilitation and inhibition,* as later work showed that the presence of an audience can inhibit performance on some tasks.

Social facilitation is the influence that the presence of another person has on an individual's performance. Zajonc (1965) described social facilitation as a "fundamental" form of social influence, as it occurs in the absence of any direct effort or intention of the observer or co-actor to alter the individual's performance. An individual's performance can either be facilitated or impaired by the presence of others. A general framework that has been offered within the social facilitation literature is that simple or well-learned tasks will be performed better in the presence of another person while difficult or novel tasks will be performed worse in the presence of another person. This general framework, however, may oversimplify the social facilitation phenomenon. There are a number of factors, in addition to task complexity or novelty, which have been considered to be important in the social facilitation and inhibition of task performance. Many social psychologists place particular importance upon the characteristics of the observer. Whether the observer is an expert or non-expert, evaluator or non-evaluator, a friend or stranger, or attentive or non-attentive to the performer may have a differential impact on the individual's performance. Characteristics of the individual may also be important, such as personality characteristics, prior experience with the task, or prior experience with being observed or evaluated (Aiello & Douthitt, 2001; Butler & Baumeister, 1998; Geen, 1989; Geen & Gange, 1977; Guerin, 1983). Some researchers of the social facilitation phenomenon consider these factors as non-essential. According to Zajonc (1965), the principal proponent of this view, the "sheer" or "mere" presence of another person is all that is required for social facilitation to occur. This group does recognize, however, that characteristics of the observer, performer, or situation can influence the magnitude of the social facilitation effect.

Another potentially important factor in social facilitation is audience size. A number of studies have demonstrated a relationship between audience size and the magnitude of social facilitation effects. Many social

theorists contend that social facilitation and inhibition effects increase as the audience size increases, and there have been empirical studies in support of this view (Jackson & Latané, 1981; Knowles, 1983; Latané, 1981; Latané & Harkins,1976; Mullen, 1983; 1985). Another group of social theorists do not consider an increase in audience size to necessarily result in a larger impact on task performance (Seta, Crisson, Seta, & Wang, 1989; Seta, Wang, Crisson & Seta, 1989). According to these theorists, the impact of an additional observer is a function of the evaluative status of that observer. If the new observer poses little threat of evaluation to the performer, the addition of this observer to the audience may actually serve to decrease the overall social influence associated with the audience and, consequently, a reduction in the social facilitation effect. If, however, the additional observer is perceived as highly evaluative, then social facilitation and inhibition effects would be expected to increase.

An interesting finding that has emerged from the research is that the *physical presence* of another person in the same room as the performer is not essential for the social facilitation effect. The social psychological literature contains several empirical studies demonstrating that observation from behind a one-way mirror, on closed-circuit television, or by video-recording the performer can impact an individual's task performance. It appears that the individual's belief that his/her performance is observed is the essential factor here. This is sometimes referred to as the "implied presence" of another person. As examples of this literature, Putz (1975) found that individuals' accuracy on a visual vigilance/signal detection task was significantly better when they believed that performance was observed through a one-way mirror, monitored on a closed-circuit television by a video camera in the room, or observed by an expert in the testing room. Geen (1973) found that presence of an another person, either in the room or observing from another room by closed circuit video during learning of letter-number pairs, significantly impacted later recall. On the recall trials, the letters were presented, and the individuals were required to supply the number that had been paired with these letters. Individuals who were observed during learning, even with observation by videocamera, recalled significantly fewer numbers on the immediate recall trial compared to individuals who had been alone during learning. On the 45 minute delayed recall, individuals observed during learning recalled significantly more numbers than those not observed during learning. As a final example of this research, Seta, Seta, Donaldson, and Wang (1988) found that an individual's recall of a word list was less organized when the performer believed that he/she

was observed by an audience behind a one-way mirror than when performed alone; however, the number of words recalled was not significantly different between the two experimental conditions.

THEORETICAL EXPLANATIONS OF SOCIAL FACILITATION

Several theoretical models have been offered to account for the social facilitation phenomenon. Guerin and Innes (1984) have organized these frameworks into three categories: drive/arousal theories, social valuation theories, and attention theories. The drive theory, proposed by Zajonc (1965), is based on the Hull-Spence drive theory. According to the Hull-Spence equation (Spence, 1956), the tendency to make a response is a function of drive level and the habit strength of that response. Drive energizes and, therefore, increases the probability of a well-learned or dominant (i.e., habit) response. If the dominant response is incorrect, performance will be inhibited by increased drive. If the dominant response is correct, performance will be enhanced by increased drive. This theory predicts, then, that difficult tasks will be impaired by social presence since the tendency to fail at such a task is greater than the tendency to succeed.

While many social psychology theorists have accepted the drive theory of social facilitation, there is disagreement as to the reason for an increase in drive when in the presence of others. Zajonc (1965) considered this increase in drive to be an innate or instinctual response that enhances the individual's preparedness to interact with social stimuli. Unlike physical stimuli, social stimuli are unpredictable, and, consequently, the individual needs to be alert and prepared to produce any number of responses. Others have suggested that the threat of evaluation, often referred to as evaluation apprehension, associated with the presence of others results in increased drive. Further, this group of social psychologists considers the increased drive to be a learned, rather than instinctual, response to social stimuli that is acquired from experience with positive and negative evaluations throughout their social development (Cottrell, Wack, Sekerak, & Rittle, 1968; Weiss & Miller, 1971). Still others have proposed that an increase in drive is in reaction to the distracting influence of an observer's presence during task performance. Essentially, this theory suggests that the performer experiences an increase in arousal as he/she is confronted with conflicting demands for attention (Sanders & Baron, 1975; Sanders, Baron, & Moore, 1978).

The social valuation theories refer to three separate but related explanations for social facilitation: objective self-awareness theory (Wicklund & Duval, 1971), control systems theory (Carver & Scheier, 1981a, 1981b), and self-presentational theory (Bond, 1982). These theories de-emphasize generalized drive and emphasize the individual's active efforts to manage his/her public self-image when performing in the presence of others. The presence of others increases the individual's awareness of any discrepancies between his/her actual behavior and an idealized behavioral standard. The facilitating effect of the presence of others on easy or well-learned tasks occurs as the individual performs at a higher level to reduce the discrepancy between the actual and idealized performance. Performance on novel or complex tasks will be worse for a variety of reasons. It may be that the individual attempts to prematurely perform at a higher level than his/her current ability allows which results in errors, or the individual may withdraw effort from the task due to his/her low expectations of meeting the idealized performance standard. An additional explanation is that the individual may become embarrassed by the discrepancy between his/her actual performance and the ideal standard, and it is the disruptive impact that this sense of embarrassment has on task performance that results in a poor performance.

Finally, the attentional theories of social facilitation focus on the observer's impact on the performer's cognitive functioning. In a re-conceptualization of his drive theory of social facilitation, Baron (1986) proposed that the attentional conflict caused by the presence of another person during task performance leads to information overload. As a result, the individual allocates attention to information that is central to the task at hand at the expense of peripheral information. Presumably, simple or well-learned tasks require attention to relatively few peripheral cues, whereas difficult or novel tasks require attention to many cues. According to this theory, the narrowing of attention facilitates performance on simple tasks by eliminating irrelevant information. On novel or complex tasks, the narrowing of attention eliminates task-relevant cues, impairing performance. Manstead and Semin (1980) offer another attention-based theory of social facilitation. According to their theory, the presence of another person during task performance invokes controlled processing of information. Simple or well-learned tasks, typically completed using automatic processing, will be completed better when the performer uses controlled processing. However, complex or novel tasks already require controlled information processing. The presence of another person serves to increase the attentional demands

and divert limited attentional resources away from the task, resulting in task performance impairment.

Presently, there remains disagreement in the field of social psychology regarding these explanations of social facilitation. It seems, however, that there is growing recognition that no single explanation can account for this phenomenon. Social facilitation is probably mediated by a number of factors including increased arousal, evaluation apprehension, increased information processing demands, or increased concern with one's self-image and public image introduced by the observer's presence. There have been some attempts to develop a model of social facilitation that integrates the various theories. For example, Paulus (1983) proposed that the presence of others during task performance evokes three states in the performer: (1) arousal, (2) effort, and (3) task-irrelevant processing. An increase in arousal (i.e., drive) influences task performance by energizing the dominant response. An increase in effort stems from the performer's desire to maintain a favorable self-image. Task irrelevant processing arises in response to the attentional demands that another person places on the performer's cognitive processes. The weight of these three states in any social situation determines whether social facilitation or inhibition of task performance will occur. Sanders (1981) offered another integrative model of social facilitation, called the Attentional Processes model. According to this model, the social facilitation effect is due to an increase in drive that results from the attentional conflict caused by the presence of another person during performance of a task. The other models of social facilitation provide explanations as to the reason that the presence of others is a source of distraction that ultimately results in the attentional conflict. A shift in attention from the task, whether to monitor the social presence, self-evaluate performance, or manage one's public image, sets the stage for attentional conflict and an increase in drive.

Despite the lack of consensus regarding the mechanism(s) underlying social facilitation and inhibition effects, the social psychological research has repeatedly demonstrated that the presence of a passive observer alters the behavior of children and adults.

SOCIAL FACILITATION AND THE NEUROPSYCHOLOGICAL EVALUATION

Social facilitation has received considerable scientific attention since initial documentation of this phenomenon in the 19th century, and there

is extensive empirical evidence that the social facilitation effect does occur across different situations. The social facilitation literature spans a wide variety of activities, including tasks primarily of athletic or physical skill as well as cognitively-based tasks. Social facilitation effects have been found on word generation tasks (Gates, 1924); paired associates learning (Baron, Moore, & Sanders, 1978; Geen, 1983; Guerin, 1983; Houston, 1970); concept attainment (Laughlin & Jaccard, 1975; Laughlin & Wong-McCarthy, 1975); maze learning (Rajecki, Ickes, Corcoran, & Lenerz, 1977; Shaver & Liebling, 1976); running speed (Strube, Miles, & Finch, 1981; Worringham & Messick, 1983); and gymnastic routines (Paulus, Shannon, Wilson, & Boone, 1972). Social facilitation effects have also been found with samples of young children. The presence of a passive audience has been found to influence the intensity of lever pulling (Clark & Fouts, 1973) and balance beam performance (MacCracken & Stadulis, 1985) in preschoolers. In grade school children, the presence of a passive audience has been shown to impact ladder climbing (Landers & Landers, 1973), letter cancellation speed and accuracy (Baldwin & Levin, 1958), reaction time (Fouts, 1980), and digit recall forward and backward (Quarter & Marcus, 1971). While this literature provides a basis to suspect that social facilitation effects may extend to neuropsychological tests conducted in the presence of third party observers, it is, of course, important to examine this hypothesis empirically.

Although third party observation is of great importance for the clinical neuropsychologist, especially the forensic neuropsychologist, only a handful of studies have examined the effect of third party observation on neuropsychological test performance. The first documented investigation of the observer effect in the context of a neuropsychological evaluation appeared in 1995. In their paper, Binder and Johnson-Greene (1995) presented a case study of a 26-year old woman with intractable seizures who was seen for neuropsychological evaluation as part of a medical work-up for the seizure disorder. As part of the neuropsychological evaluation, the woman was administered the Portland Digit Recognition Test (PDRT) following discontinuation rules for accurate performances on the PDRT. The examiner later returned to the patient's room to administer the PDRT in full, since a complete administration was in keeping with the epilepsy protocol. The patient's mother was visiting and requested to remain in the room while the test was administered. The examiner allowed the mother to remain but then requested that she leave the room after noticing a decline in the patient's accuracy compared to her earlier performance on this measure. After mother's

departure, the patient's accuracy increased. Apparently curious to see if this pattern would repeat, the examiner administered the remaining items first with mother present and then absent. The pattern of worsening performance in the presence of her mother and improving performance in her absence continued. In total, the patient's accuracy significantly declined from 65.4% under standard testing conditions to 38.5% when her mother remained in the room.

Binder and Johnson-Greene's single case study provided initial evidence that the social facilitation phenomenon might extend to neuropsychological testing. The findings from that study were in concert with the predictions of the social facilitation literature. The patient's accuracy on difficult items of the PDRT declined in the presence of a significant-other observer. Subsequent research has provided further evidence that an observer during neuropsychological testing significantly impacts the individual's test performance. Huguet, Galvaing, Monteil, and Dumas (1999) examined social facilitation effects on a computerized version of the Stroop test with a sample of 48 undergraduate females. The students completed the test alone or in the presence of an observer. The observer was identified as another student waiting to participate in a separate study. There were three different observer conditions: an attentive observer who sat opposite to the performer and watched her complete the task for 60% of the time; an inattentive observer who sat opposite the performer but never looked at her (e.g., read a book); and an "invisible" observer who sat behind the performer and was therefore out of view. The presence of an attentive observer and an invisible observer was associated with a significantly faster completion of the Interference trial. The presence of an inattentive observer who did not watch the test taker at any time did not significantly impact performance.

Kehrer, Sanchez, Habif, Rosenbaum, and Townes (2000) examined the effects of a significant-other observer's presence on performance on a repeatable neuropsychological battery. The study sample was 30 undergraduate students referred for neuropsychological testing to determine eligibility for special education accommodations. The students enrolled in the study were informed that the purpose of the research was to examine "the effects of an observer on examiner-examinee interaction" (p. 68). The observer was a parent, spouse, friend or sibling of the student. During test administration, the observer sat out of the direct view of the student, watched the testing attentively, and did not interact with the student. Each participant was administered a subset of the neuropsychological battery twice (using alternative forms for some tests), once under standard conditions and once with the significant-

other present. Test administration followed an A-B-A-B design of observer absence and presence. Difference scores between the unobserved and observed conditions were calculated for each measure. Findings showed that, in the presence of a significant-other observer, students produced significantly more perseverative responses on the Rey Auditory Verbal Learning Test and performed significantly lower on Digit Span; Stroop word reading, color naming, and color/word trial; the Paced Auditory Serial Addition Test; and the Controlled Oral Word Association Test. There was no observer effect found on the Trail Making Test, Finger Tapping Test, or on total words recalled and number of intrusions on the Rey Auditory Verbal Learning Test.

Constantinou, Ashendorf, and McCaffrey (2002) examined the impact of audio-recording on neuropsychological test performance of 40 undergraduate university students. In this study, each student's neuropsychological testing session was audio-taped, but only half of the students were aware that the testing session was recorded. In the "Aware" group, the audio-recorder was placed on the testing table in close proximity to the student. In the "Non-Aware" group, the audio-recorder was hidden under the testing table. The findings showed that students who were aware of the audio-recording performed significantly lower on several subtests from the Memory Assessment Scales. Specifically, the Aware group performed significantly lower on List Acquisition, Immediate Cued Recall, Delayed List Recall, and Delayed Cued Recall. There were no significant group differences on the Finger Tapping Test, Lafayette Grooved Pegboard, Grip Strength, or the List Recall or Verbal Span subtests from the Memory Assessment Scales. These findings extend third party observer effects on neuropsychological testing to include electronic observation.

This literature has demonstrated that presence of an observer during administration of neuropsychological testing significantly reduces the examinee's test performance. The next three articles in this special issue will report on additional empirical studies of the impact of an observer on neuropsychological test performance. The first paper demonstrates the impact of a third party observer on neuropsychological tests among closed head injury survivors. The next article deals with the effect of a video-recorder as the third party observer on neuropsychological testing. The last empirical article focuses on the situation in which an examinee is told that a supervisory third party observer (e.g., clinical supervisor or "trained observer") is present specifically to observe the examiner's administration of the neuropsychological testing and not the examinee's performance. Each of these studies provides evidence that

neuropsychological testing in the presence of an observer, whether physically present or present through electronic means, results in a decrement in performance on some neuropsychological measures.

The importance of maintaining standardized testing procedures has always been recognized by clinical neuropsychological practitioners. Less appreciated has been the clinical significance of breaking standardized procedures. It is hoped that the research presented in this issue will serve to highlight the importance of following a standardized test protocol. There have been several empirical studies that have shown that changes in seemingly minor aspects of the standardization procedures results in a significant change in test performance. For example, changing the mode of presentation (reading, computerized vs. audiotape), deviation from prescribed test instructions, or changing the rate of stimulus presentation have been found to significantly impact performance (see Lee, Reynolds, & Willson, 2003, for review). The research on third party observers of neuropsychological evaluation provides additional confirmation that adherence to standardized test procedures is essential.

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Exhibit D:

The American Psychological Association's (APA)

Ethical Principles of Psychologists and Code of Conduct

AMERICAN PSYCHOLOGICAL ASSOCIATION

ETHICAL PRINCIPLES OF PSYCHOLOGISTS AND CODE OF CONDUCT

Adopted August 21, 2002
Effective June 1, 2003

With the 2010 Amendments
Adopted February 20, 2010
Effective June 1, 2010

ETHICAL PRINCIPLES OF PSYCHOLOGISTS AND CODE OF CONDUCT

CONTENTS

INTRODUCTION AND APPLICABILITY

The American Psychological Association's (APA's) Ethical Principles of Psychologists and Code of Conduct (hereinafter referred to as the Ethics Code) consists of an Introduction, a Preamble, five General Principles (A–E), and specific Ethical Standards. The Introduction discusses the intent, organization, procedural considerations, and scope of application of the Ethics Code. The Preamble and General Principles are aspirational goals to guide psychologists toward the highest ideals of psychology. Although the Preamble and General Principles are not themselves enforceable rules, they should be considered by psychologists in arriving at an ethical course of action. The Ethical Standards set forth enforceable rules for conduct as psychologists. Most of the Ethical Standards are written broadly, in order to apply to psychologists in varied roles, although the application of an Ethical Standard may vary depending on the context. The Ethical Standards are not exhaustive. The fact that a given conduct is not specifically addressed by an Ethical Standard does not mean that it is necessarily either ethical or unethical.

This Ethics Code applies only to psychologists' activities that are part of their scientific, educational, or professional roles as psychologists. Areas covered include but are not limited to the clinical, counseling, and school practice of psychology; research; teaching; supervision of trainees; public service; policy development; social intervention; development of assessment instruments; conducting assessments; educational counseling; organizational consulting; forensic activities; program design and evaluation; and administration. This Ethics Code applies to these activities across a variety of contexts, such as in person, postal, telephone, Internet, and other electronic transmissions. These activities shall be distinguished from the purely private conduct of psychologists, which is not within the purview of the Ethics Code.

Membership in the APA commits members and student affiliates to comply with the standards of the APA Ethics Code and to the rules and procedures used to enforce them. Lack of awareness or misunderstanding of an Ethical Standard is not itself a defense to a charge of unethical conduct.

The procedures for filing, investigating, and resolving complaints of unethical conduct are described in the current Rules and Procedures of the APA Ethics Committee. APA may impose sanctions on its members for violations of the standards of the Ethics Code, including termination of APA membership, and may notify other bodies and individuals of its actions. Actions that violate the standards of the Ethics Code may also lead to the imposition of sanctions on psychologists or students whether or not they are APA members by bodies other than APA, including state psychological associations, other professional groups, psychology boards, other state or federal agencies, and payors for health services. In addition, APA may take action against a member after his or her conviction of a felony, expulsion or suspension from an affiliated state psychological association, or suspension or loss of licensure. When the sanction to be imposed by APA is less than expulsion, the 2001 Rules and Procedures do not guarantee an opportunity for an in-person hearing, but generally provide that complaints will be resolved only on the basis of a submitted record.

The Ethics Code is intended to provide guidance for psychologists and standards of professional conduct that can be applied by the APA and by other bodies that choose to adopt them. The Ethics Code is not intended to be a basis of civil liability. Whether a psychologist has violated the Ethics Code standards does not by itself determine whether the psychologist is legally liable in a court action, whether a contract is enforceable, or whether other legal consequences occur.

The modifiers used in some of the standards of this Ethics Code (e.g., *reasonably, appropriate, potentially*) are included in the standards when they would (1) allow professional judgment on the part of psychologists, (2) eliminate injustice or inequality that would occur without the modifier, (3) ensure applicability across the broad range of activities conducted by psychologists, or (4) guard against a set of rigid rules that might be quickly outdated. As used in this Ethics Code, the term *reasonable* means the prevailing professional judgment of psychologists engaged in similar activities in similar circumstances, given the knowledge the psychologist had or should have had at the time.

The American Psychological Association's Council of Representatives adopted this version of the APA Ethics Code during its meeting on August 21, 2002. The Code became effective on June 1, 2003. The Council of Representatives amended this version of the Ethics Code on February 20, 2010. The amendments became effective on June 1, 2010 (see p. 15 of this pamphlet). Inquiries concerning the substance or interpretation of the APA Ethics Code should be addressed to the Director, Office of Ethics, American Psychological Association, 750 First Street, NE, Washington, DC 20002-4242. The Ethics Code and information regarding the Code can be found on the APA website, http://www.apa.org/ethics. The standards in this Ethics Code will be used to adjudicate complaints brought concerning alleged conduct occurring on or after the effective date. Complaints will be adjudicated on the basis of the version of the Ethics Code that was in effect at the time the conduct occurred.

The APA has previously published its Ethics Code as follows:

American Psychological Association. (1953). *Ethical standards of psychologists.* Washington, DC: Author.

American Psychological Association. (1959). Ethical standards of psychologists. *American Psychologist, 14,* 279–282.

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American Psychological Association. (2002). Ethical principles of psychologists and code of conduct. *American Psychologist, 57,* 1060-1073.

Request copies of the APA's Ethical Principles of Psychologists and Code of Conduct from the APA Order Department, 750 First Street, NE, Washington, DC 20002-4242, or phone (202) 336-5510.

In the process of making decisions regarding their professional behavior, psychologists must consider this Ethics Code in addition to applicable laws and psychology board regulations. In applying the Ethics Code to their professional work, psychologists may consider other materials and guidelines that have been adopted or endorsed by scientific and professional psychological organizations and the dictates of their own conscience, as well as consult with others within the field. If this Ethics Code establishes a higher standard of conduct than is required by law, psychologists must meet the higher ethical standard. If psychologists' ethical responsibilities conflict with law, regulations, or other governing legal authority, psychologists make known their commitment to this Ethics Code and take steps to resolve the conflict in a responsible manner in keeping with basic principles of human rights.

PREAMBLE

Psychologists are committed to increasing scientific and professional knowledge of behavior and people's understanding of themselves and others and to the use of such knowledge to improve the condition of individuals, organizations, and society. Psychologists respect and protect civil and human rights and the central importance of freedom of inquiry and expression in research, teaching, and publication. They strive to help the public in developing informed judgments and choices concerning human behavior. In doing so, they perform many roles, such as researcher, educator, diagnostician, therapist, supervisor, consultant, administrator, social interventionist, and expert witness. This Ethics Code provides a common set of principles and standards upon which psychologists build their professional and scientific work.

This Ethics Code is intended to provide specific standards to cover most situations encountered by psychologists. It has as its goals the welfare and protection of the individuals and groups with whom psychologists work and the education of members, students, and the public regarding ethical standards of the discipline.

The development of a dynamic set of ethical standards for psychologists' work-related conduct requires a personal commitment and lifelong effort to act ethically; to encourage ethical behavior by students, supervisees, employees, and colleagues; and to consult with others concerning ethical problems.

GENERAL PRINCIPLES

This section consists of General Principles. General Principles, as opposed to Ethical Standards, are aspirational in nature. Their intent is to guide and inspire psychologists toward the very highest ethical ideals of the profession. General Principles, in contrast to Ethical Standards, do not represent obligations and should not form the basis for imposing sanctions. Relying upon General Principles for either of these reasons distorts both their meaning and purpose.

Principle A: Beneficence and Nonmaleficence

Psychologists strive to benefit those with whom they work and take care to do no harm. In their professional actions, psychologists seek to safeguard the welfare and rights of those with whom they interact professionally and other affected persons, and the welfare of animal subjects of research. When conflicts occur among psychologists' obligations or concerns, they attempt to resolve these conflicts in a responsible fashion that avoids or minimizes harm. Because psychologists' scientific and professional judgments and actions may affect the lives of others, they are alert to and guard against personal, financial, social, organizational, or political factors that might lead to misuse of their influence. Psychologists strive to be aware of the possible effect of their own physical and mental health on their ability to help those with whom they work.

Principle B: Fidelity and Responsibility

Psychologists establish relationships of trust with those with whom they work. They are aware of their professional and scientific responsibilities to society and to the specific communities in which they work. Psychologists uphold professional standards of conduct, clarify their professional roles and obligations, accept appropriate responsibility for their behavior, and seek to manage conflicts of interest that could lead to exploitation or harm. Psychologists consult with, refer to, or cooperate with other professionals and institutions to the extent needed to serve the best interests of those with whom they work. They are concerned about the ethical compliance of their colleagues' scientific and professional conduct. Psychologists strive to contribute a portion of their professional time for little or no compensation or personal advantage.

Principle C: Integrity

Psychologists seek to promote accuracy, honesty, and truthfulness in the science, teaching, and practice of psychology. In these activities psychologists do not steal, cheat, or engage in fraud, subterfuge, or intentional misrepresentation of fact. Psychologists strive to keep their promises and to avoid unwise or unclear commitments. In situations in which deception may be ethically justifiable to maximize benefits and minimize harm, psychologists have a serious obligation to consider the need for, the possible consequences of, and their responsibility to correct any resulting mistrust or other harmful effects that arise from the use of such techniques.

Principle D: Justice

Psychologists recognize that fairness and justice entitle all persons to access to and benefit from the contributions of psychology and to equal quality in the processes, procedures, and services being conducted by psychologists. Psychologists exercise reasonable judgment and take precautions to ensure that their potential biases, the boundaries of

their competence, and the limitations of their expertise do not lead to or condone unjust practices.

Principle E: Respect for People's Rights and Dignity

Psychologists respect the dignity and worth of all people, and the rights of individuals to privacy, confidentiality, and self-determination. Psychologists are aware that special safeguards may be necessary to protect the rights and welfare of persons or communities whose vulnerabilities impair autonomous decision making. Psychologists are aware of and respect cultural, individual, and role differences, including those based on age, gender, gender identity, race, ethnicity, culture, national origin, religion, sexual orientation, disability, language, and socioeconomic status, and consider these factors when working with members of such groups. Psychologists try to eliminate the effect on their work of biases based on those factors, and they do not knowingly participate in or condone activities of others based upon such prejudices.

ETHICAL STANDARDS

1. Resolving Ethical Issues

1.01 Misuse of Psychologists' Work

If psychologists learn of misuse or misrepresentation of their work, they take reasonable steps to correct or minimize the misuse or misrepresentation.

1.02 Conflicts Between Ethics and Law, Regulations, or Other Governing Legal Authority

If psychologists' ethical responsibilities conflict with law, regulations, or other governing legal authority, psychologists clarify the nature of the conflict, make known their commitment to the Ethics Code, and take reasonable steps to resolve the conflict consistent with the General Principles and Ethical Standards of the Ethics Code. Under no circumstances may this standard be used to justify or defend violating human rights.

1.03 Conflicts Between Ethics and Organizational Demands

If the demands of an organization with which psychologists are affiliated or for whom they are working are in conflict with this Ethics Code, psychologists clarify the nature of the conflict, make known their commitment to the Ethics Code, and take reasonable steps to resolve the conflict consistent with the General Principles and Ethical Standards of the Ethics Code. Under no circumstances may this standard be used to justify or defend violating human rights.

1.04 Informal Resolution of Ethical Violations

When psychologists believe that there may have been an ethical violation by another psychologist, they attempt to resolve the issue by bringing it to the attention of that individual, if an informal resolution appears appropriate and the intervention does not violate any confidentiality rights that may be involved. (See also Standards 1.02, Conflicts Between Ethics and Law, Regulations, or Other Governing Legal Authority, and 1.03, Conflicts Between Ethics and Organizational Demands.)

1.05 Reporting Ethical Violations

If an apparent ethical violation has substantially harmed or is likely to substantially harm a person or organization and is not appropriate for informal resolution under Standard 1.04, Informal Resolution of Ethical Violations, or is not resolved properly in that fashion, psychologists take further action appropriate to the situation. Such action might include referral to state or national committees on professional ethics, to state licensing boards, or to the appropriate institutional authorities. This standard does not apply when an intervention would violate confidentiality rights or when psychologists have been retained to review the work of another psychologist whose professional conduct is in question. (See also Standard 1.02, Conflicts Between Ethics and Law, Regulations, or Other Governing Legal Authority.)

1.06 Cooperating With Ethics Committees

Psychologists cooperate in ethics investigations, proceedings, and resulting requirements of the APA or any affiliated state psychological association to which they belong. In doing so, they address any confidentiality issues. Failure to cooperate is itself an ethics violation. However, making a request for deferment of adjudication of an ethics complaint pending the outcome of litigation does not alone constitute noncooperation.

1.07 Improper Complaints

Psychologists do not file or encourage the filing of ethics complaints that are made with reckless disregard for or willful ignorance of facts that would disprove the allegation.

1.08 Unfair Discrimination Against Complainants and Respondents

Psychologists do not deny persons employment, advancement, admissions to academic or other programs, tenure, or promotion, based solely upon their having made or their being the subject of an ethics complaint. This does not preclude taking action based upon the outcome of such proceedings or considering other appropriate information.

2. Competence

2.01 Boundaries of Competence

(a) Psychologists provide services, teach, and conduct research with populations and in areas only within the boundaries of their competence, based on their education, training, supervised experience, consultation, study, or professional experience.

(b) Where scientific or professional knowledge in the discipline of psychology establishes that an understanding of factors associated with age, gender, gender identity, race, ethnicity, culture, national origin, religion, sexual orientation, disability, language, or socioeconomic status is essential for effective implementation of their services or research, psychologists have or obtain the training, experience, consultation, or supervision necessary to ensure the competence of their services, or they make appropriate referrals, except as provided in Standard 2.02, Providing Services in Emergencies.

(c) Psychologists planning to provide services, teach, or conduct research involving populations, areas, techniques, or technologies new to them undertake relevant education, training, supervised experience, consultation, or study.

(d) When psychologists are asked to provide services to individuals for whom appropriate mental health services are not available and for which psychologists have not obtained the competence necessary, psychologists with closely related prior training or experience may provide such services in order to ensure that services are not denied if they make a reasonable effort to obtain the competence required by using relevant research, training, consultation, or study.

(e) In those emerging areas in which generally recognized standards for preparatory training do not yet exist, psychologists nevertheless take reasonable steps to ensure the competence of their work and to protect clients/patients, students, supervisees, research participants, organizational clients, and others from harm.

(f) When assuming forensic roles, psychologists are or become reasonably familiar with the judicial or administrative rules governing their roles.

2.02 Providing Services in Emergencies

In emergencies, when psychologists provide services to individuals for whom other mental health services are not available and for which psychologists have not obtained the necessary training, psychologists may provide such services in order to ensure that services are not denied. The services are discontinued as soon as the emergency has ended or appropriate services are available.

2.03 Maintaining Competence

Psychologists undertake ongoing efforts to develop and maintain their competence.

2.04 Bases for Scientific and Professional Judgments

Psychologists' work is based upon established scientific and professional knowledge of the discipline. (See also Standards 2.01e, Boundaries of Competence, and 10.01b, Informed Consent to Therapy.)

2.05 Delegation of Work to Others

Psychologists who delegate work to employees, supervisees, or research or teaching assistants or who use the services of others, such as interpreters, take reasonable steps to (1) avoid delegating such work to persons who have a multiple relationship with those being served that would likely lead to exploitation or loss of objectivity; (2) authorize only those responsibilities that such persons can be expected to perform competently on the basis of their education, training, or experience, either independently or with the level of supervision being provided; and (3) see that such persons perform these services competently. (See also Standards 2.02, Providing Services in Emergencies; 3.05, Multiple Relationships; 4.01, Maintaining Confidentiality; 9.01, Bases for Assessments; 9.02, Use of Assessments; 9.03, Informed Consent in Assessments; and 9.07, Assessment by Unqualified Persons.)

2.06 Personal Problems and Conflicts

(a) Psychologists refrain from initiating an activity when they know or should know that there is a substantial likelihood that their personal problems will prevent them from performing their work-related activities in a competent manner.

(b) When psychologists become aware of personal problems that may interfere with their performing work-related duties adequately, they take appropriate measures, such as obtaining professional consultation or assistance, and determine whether they should limit, suspend, or terminate their work-related duties. (See also Standard 10.10, Terminating Therapy.)

3. Human Relations

3.01 Unfair Discrimination

In their work-related activities, psychologists do not engage in unfair discrimination based on age, gender, gender identity, race, ethnicity, culture, national origin, religion, sexual orientation, disability, socioeconomic status, or any basis proscribed by law.

3.02 Sexual Harassment

Psychologists do not engage in sexual harassment. Sexual harassment is sexual solicitation, physical advances, or verbal or nonverbal conduct that is sexual in nature, that occurs in connection with the psychologist's activities or roles as a psychologist, and that either (1) is unwelcome, is offensive, or creates a hostile workplace or educational environment, and the psychologist knows or is told this or (2) is sufficiently severe or intense to be abusive to a reasonable person in the context. Sexual harassment can consist of a single intense or severe act or of multiple persistent or pervasive acts. (See also Standard 1.08, Unfair Discrimination Against Complainants and Respondents.)

3.03 Other Harassment

Psychologists do not knowingly engage in behavior that is harassing or demeaning to persons with whom they interact in their work based on factors such as those persons' age, gender, gender identity, race, ethnicity, culture, national

origin, religion, sexual orientation, disability, language, or socioeconomic status.

3.04 Avoiding Harm

Psychologists take reasonable steps to avoid harming their clients/patients, students, supervisees, research participants, organizational clients, and others with whom they work, and to minimize harm where it is foreseeable and unavoidable.

3.05 Multiple Relationships

(a) A multiple relationship occurs when a psychologist is in a professional role with a person and (1) at the same time is in another role with the same person, (2) at the same time is in a relationship with a person closely associated with or related to the person with whom the psychologist has the professional relationship, or (3) promises to enter into another relationship in the future with the person or a person closely associated with or related to the person.

A psychologist refrains from entering into a multiple relationship if the multiple relationship could reasonably be expected to impair the psychologist's objectivity, competence, or effectiveness in performing his or her functions as a psychologist, or otherwise risks exploitation or harm to the person with whom the professional relationship exists.

Multiple relationships that would not reasonably be expected to cause impairment or risk exploitation or harm are not unethical.

(b) If a psychologist finds that, due to unforeseen factors, a potentially harmful multiple relationship has arisen, the psychologist takes reasonable steps to resolve it with due regard for the best interests of the affected person and maximal compliance with the Ethics Code.

(c) When psychologists are required by law, institutional policy, or extraordinary circumstances to serve in more than one role in judicial or administrative proceedings, at the outset they clarify role expectations and the extent of confidentiality and thereafter as changes occur. (See also Standards 3.04, Avoiding Harm, and 3.07, Third-Party Requests for Services.)

3.06 Conflict of Interest

Psychologists refrain from taking on a professional role when personal, scientific, professional, legal, financial, or other interests or relationships could reasonably be expected to (1) impair their objectivity, competence, or effectiveness in performing their functions as psychologists or (2) expose the person or organization with whom the professional relationship exists to harm or exploitation.

3.07 Third-Party Requests for Services

When psychologists agree to provide services to a person or entity at the request of a third party, psychologists attempt to clarify at the outset of the service the nature of the relationship with all individuals or organizations involved. This clarification includes the role of the psychologist (e.g., therapist, consultant, diagnostician, or expert witness), an identification of who is the client, the probable uses of the services provided or the information obtained, and the fact that there may be limits to confidentiality. (See also Standards 3.05, Multiple Relationships, and 4.02, Discussing the Limits of Confidentiality.)

3.08 Exploitative Relationships

Psychologists do not exploit persons over whom they have supervisory, evaluative, or other authority such as clients/patients, students, supervisees, research participants, and employees. (See also Standards 3.05, Multiple Relationships; 6.04, Fees and Financial Arrangements; 6.05, Barter With Clients/Patients; 7.07, Sexual Relationships With Students and Supervisees; 10.05, Sexual Intimacies With Current Therapy Clients/Patients; 10.06, Sexual Intimacies With Relatives or Significant Others of Current Therapy Clients/Patients; 10.07, Therapy With Former Sexual Partners; and 10.08, Sexual Intimacies With Former Therapy Clients/Patients.)

3.09 Cooperation With Other Professionals

When indicated and professionally appropriate, psychologists cooperate with other professionals in order to serve their clients/patients effectively and appropriately. (See also Standard 4.05, Disclosures.)

3.10 Informed Consent

(a) When psychologists conduct research or provide assessment, therapy, counseling, or consulting services in person or via electronic transmission or other forms of communication, they obtain the informed consent of the individual or individuals using language that is reasonably understandable to that person or persons except when conducting such activities without consent is mandated by law or governmental regulation or as otherwise provided in this Ethics Code. (See also Standards 8.02, Informed Consent to Research; 9.03, Informed Consent in Assessments; and 10.01, Informed Consent to Therapy.)

(b) For persons who are legally incapable of giving informed consent, psychologists nevertheless (1) provide an appropriate explanation, (2) seek the individual's assent, (3) consider such persons' preferences and best interests, and (4) obtain appropriate permission from a legally authorized person, if such substitute consent is permitted or required by law. When consent by a legally authorized person is not permitted or required by law, psychologists take reasonable steps to protect the individual's rights and welfare.

(c) When psychological services are court ordered or otherwise mandated, psychologists inform the individual of the nature of the anticipated services, including whether the services are court ordered or mandated and any limits of confidentiality, before proceeding.

(d) Psychologists appropriately document written or oral consent, permission, and assent. (See also Standards 8.02,

Informed Consent to Research; 9.03, Informed Consent in Assessments; and 10.01, Informed Consent to Therapy.)

3.11 Psychological Services Delivered to or Through Organizations

(a) Psychologists delivering services to or through organizations provide information beforehand to clients and when appropriate those directly affected by the services about (1) the nature and objectives of the services, (2) the intended recipients, (3) which of the individuals are clients, (4) the relationship the psychologist will have with each person and the organization, (5) the probable uses of services provided and information obtained, (6) who will have access to the information, and (7) limits of confidentiality. As soon as feasible, they provide information about the results and conclusions of such services to appropriate persons.

(b) If psychologists will be precluded by law or by organizational roles from providing such information to particular individuals or groups, they so inform those individuals or groups at the outset of the service.

3.12 Interruption of Psychological Services

Unless otherwise covered by contract, psychologists make reasonable efforts to plan for facilitating services in the event that psychological services are interrupted by factors such as the psychologist's illness, death, unavailability, relocation, or retirement or by the client's/patient's relocation or financial limitations. (See also Standard 6.02c, Maintenance, Dissemination, and Disposal of Confidential Records of Professional and Scientific Work.)

4. Privacy and Confidentiality

4.01 Maintaining Confidentiality

Psychologists have a primary obligation and take reasonable precautions to protect confidential information obtained through or stored in any medium, recognizing that the extent and limits of confidentiality may be regulated by law or established by institutional rules or professional or scientific relationship. (See also Standard 2.05, Delegation of Work to Others.)

4.02 Discussing the Limits of Confidentiality

(a) Psychologists discuss with persons (including, to the extent feasible, persons who are legally incapable of giving informed consent and their legal representatives) and organizations with whom they establish a scientific or professional relationship (1) the relevant limits of confidentiality and (2) the foreseeable uses of the information generated through their psychological activities. (See also Standard 3.10, Informed Consent.)

(b) Unless it is not feasible or is contraindicated, the discussion of confidentiality occurs at the outset of the relationship and thereafter as new circumstances may warrant.

(c) Psychologists who offer services, products, or information via electronic transmission inform clients/patients of the risks to privacy and limits of confidentiality.

4.03 Recording

Before recording the voices or images of individuals to whom they provide services, psychologists obtain permission from all such persons or their legal representatives. (See also Standards 8.03, Informed Consent for Recording Voices and Images in Research; 8.05, Dispensing With Informed Consent for Research; and 8.07, Deception in Research.)

4.04 Minimizing Intrusions on Privacy

(a) Psychologists include in written and oral reports and consultations, only information germane to the purpose for which the communication is made.

(b) Psychologists discuss confidential information obtained in their work only for appropriate scientific or professional purposes and only with persons clearly concerned with such matters.

4.05 Disclosures

(a) Psychologists may disclose confidential information with the appropriate consent of the organizational client, the individual client/patient, or another legally authorized person on behalf of the client/patient unless prohibited by law.

(b) Psychologists disclose confidential information without the consent of the individual only as mandated by law, or where permitted by law for a valid purpose such as to (1) provide needed professional services; (2) obtain appropriate professional consultations; (3) protect the client/patient, psychologist, or others from harm; or (4) obtain payment for services from a client/patient, in which instance disclosure is limited to the minimum that is necessary to achieve the purpose. (See also Standard 6.04e, Fees and Financial Arrangements.)

4.06 Consultations

When consulting with colleagues, (1) psychologists do not disclose confidential information that reasonably could lead to the identification of a client/patient, research participant, or other person or organization with whom they have a confidential relationship unless they have obtained the prior consent of the person or organization or the disclosure cannot be avoided, and (2) they disclose information only to the extent necessary to achieve the purposes of the consultation. (See also Standard 4.01, Maintaining Confidentiality.)

4.07 Use of Confidential Information for Didactic or Other Purposes

Psychologists do not disclose in their writings, lectures, or other public media, confidential, personally identifiable information concerning their clients/patients, students, research participants, organizational clients, or other recipi-

ents of their services that they obtained during the course of their work, unless (1) they take reasonable steps to disguise the person or organization, (2) the person or organization has consented in writing, or (3) there is legal authorization for doing so.

5. Advertising and Other Public Statements

5.01 Avoidance of False or Deceptive Statements

(a) Public statements include but are not limited to paid or unpaid advertising, product endorsements, grant applications, licensing applications, other credentialing applications, brochures, printed matter, directory listings, personal resumes or curricula vitae, or comments for use in media such as print or electronic transmission, statements in legal proceedings, lectures and public oral presentations, and published materials. Psychologists do not knowingly make public statements that are false, deceptive, or fraudulent concerning their research, practice, or other work activities or those of persons or organizations with which they are affiliated.

(b) Psychologists do not make false, deceptive, or fraudulent statements concerning (1) their training, experience, or competence; (2) their academic degrees; (3) their credentials; (4) their institutional or association affiliations; (5) their services; (6) the scientific or clinical basis for, or results or degree of success of, their services; (7) their fees; or (8) their publications or research findings.

(c) Psychologists claim degrees as credentials for their health services only if those degrees (1) were earned from a regionally accredited educational institution or (2) were the basis for psychology licensure by the state in which they practice.

5.02 Statements by Others

(a) Psychologists who engage others to create or place public statements that promote their professional practice, products, or activities retain professional responsibility for such statements.

(b) Psychologists do not compensate employees of press, radio, television, or other communication media in return for publicity in a news item. (See also Standard 1.01, Misuse of Psychologists' Work.)

(c) A paid advertisement relating to psychologists' activities must be identified or clearly recognizable as such.

5.03 Descriptions of Workshops and Non-Degree-Granting Educational Programs

To the degree to which they exercise control, psychologists responsible for announcements, catalogs, brochures, or advertisements describing workshops, seminars, or other non-degree-granting educational programs ensure that they accurately describe the audience for which the program is intended, the educational objectives, the presenters, and the fees involved.

5.04 Media Presentations

When psychologists provide public advice or comment via print, Internet, or other electronic transmission, they take precautions to ensure that statements (1) are based on their professional knowledge, training, or experience in accord with appropriate psychological literature and practice; (2) are otherwise consistent with this Ethics Code; and (3) do not indicate that a professional relationship has been established with the recipient. (See also Standard 2.04, Bases for Scientific and Professional Judgments.)

5.05 Testimonials

Psychologists do not solicit testimonials from current therapy clients/patients or other persons who because of their particular circumstances are vulnerable to undue influence.

5.06 In-Person Solicitation

Psychologists do not engage, directly or through agents, in uninvited in-person solicitation of business from actual or potential therapy clients/patients or other persons who because of their particular circumstances are vulnerable to undue influence. However, this prohibition does not preclude (1) attempting to implement appropriate collateral contacts for the purpose of benefiting an already engaged therapy client/patient or (2) providing disaster or community outreach services.

6. Record Keeping and Fees

6.01 Documentation of Professional and Scientific Work and Maintenance of Records

Psychologists create, and to the extent the records are under their control, maintain, disseminate, store, retain, and dispose of records and data relating to their professional and scientific work in order to (1) facilitate provision of services later by them or by other professionals, (2) allow for replication of research design and analyses, (3) meet institutional requirements, (4) ensure accuracy of billing and payments, and (5) ensure compliance with law. (See also Standard 4.01, Maintaining Confidentiality.)

6.02 Maintenance, Dissemination, and Disposal of Confidential Records of Professional and Scientific Work

(a) Psychologists maintain confidentiality in creating, storing, accessing, transferring, and disposing of records under their control, whether these are written, automated, or in any other medium. (See also Standards 4.01, Maintaining Confidentiality, and 6.01, Documentation of Professional and Scientific Work and Maintenance of Records.)

(b) If confidential information concerning recipients of psychological services is entered into databases or systems of records available to persons whose access has not been consented to by the recipient, psychologists use coding or other techniques to avoid the inclusion of personal identifiers.

(c) Psychologists make plans in advance to facilitate the appropriate transfer and to protect the confidentiality of records and data in the event of psychologists' withdrawal from positions or practice. (See also Standards 3.12, Interruption of Psychological Services, and 10.09, Interruption of Therapy.)

6.03 Withholding Records for Nonpayment

Psychologists may not withhold records under their control that are requested and needed for a client's/patient's emergency treatment solely because payment has not been received.

6.04 Fees and Financial Arrangements

(a) As early as is feasible in a professional or scientific relationship, psychologists and recipients of psychological services reach an agreement specifying compensation and billing arrangements.

(b) Psychologists' fee practices are consistent with law.

(c) Psychologists do not misrepresent their fees.

(d) If limitations to services can be anticipated because of limitations in financing, this is discussed with the recipient of services as early as is feasible. (See also Standards 10.09, Interruption of Therapy, and 10.10, Terminating Therapy.)

(e) If the recipient of services does not pay for services as agreed, and if psychologists intend to use collection agencies or legal measures to collect the fees, psychologists first inform the person that such measures will be taken and provide that person an opportunity to make prompt payment. (See also Standards 4.05, Disclosures; 6.03, Withholding Records for Nonpayment; and 10.01, Informed Consent to Therapy.)

6.05 Barter With Clients/Patients

Barter is the acceptance of goods, services, or other nonmonetary remuneration from clients/patients in return for psychological services. Psychologists may barter only if (1) it is not clinically contraindicated, and (2) the resulting arrangement is not exploitative. (See also Standards 3.05, Multiple Relationships, and 6.04, Fees and Financial Arrangements.)

6.06 Accuracy in Reports to Payors and Funding Sources

In their reports to payors for services or sources of research funding, psychologists take reasonable steps to ensure the accurate reporting of the nature of the service provided or research conducted, the fees, charges, or payments, and where applicable, the identity of the provider, the findings, and the diagnosis. (See also Standards 4.01, Maintaining Confidentiality; 4.04, Minimizing Intrusions on Privacy; and 4.05, Disclosures.)

6.07 Referrals and Fees

When psychologists pay, receive payment from, or divide fees with another professional, other than in an employer–employee relationship, the payment to each is based on the services provided (clinical, consultative, administrative, or other) and is not based on the referral itself. (See also Standard 3.09, Cooperation With Other Professionals.)

7. Education and Training

7.01 Design of Education and Training Programs

Psychologists responsible for education and training programs take reasonable steps to ensure that the programs are designed to provide the appropriate knowledge and proper experiences, and to meet the requirements for licensure, certification, or other goals for which claims are made by the program. (See also Standard 5.03, Descriptions of Workshops and Non-Degree-Granting Educational Programs.)

7.02 Descriptions of Education and Training Programs

Psychologists responsible for education and training programs take reasonable steps to ensure that there is a current and accurate description of the program content (including participation in required course- or program-related counseling, psychotherapy, experiential groups, consulting projects, or community service), training goals and objectives, stipends and benefits, and requirements that must be met for satisfactory completion of the program. This information must be made readily available to all interested parties.

7.03 Accuracy in Teaching

(a) Psychologists take reasonable steps to ensure that course syllabi are accurate regarding the subject matter to be covered, bases for evaluating progress, and the nature of course experiences. This standard does not preclude an instructor from modifying course content or requirements when the instructor considers it pedagogically necessary or desirable, so long as students are made aware of these modifications in a manner that enables them to fulfill course requirements. (See also Standard 5.01, Avoidance of False or Deceptive Statements.)

(b) When engaged in teaching or training, psychologists present psychological information accurately. (See also Standard 2.03, Maintaining Competence.)

7.04 Student Disclosure of Personal Information

Psychologists do not require students or supervisees to disclose personal information in course- or program-related activities, either orally or in writing, regarding sexual history, history of abuse and neglect, psychological treatment, and relationships with parents, peers, and spouses or significant others except if (1) the program or training facility has clearly identified this requirement in its admissions and program materials or (2) the information is necessary to evaluate or obtain assistance for students whose personal problems could reasonably be judged to be preventing them from performing their training- or professionally related activities in a competent manner or posing a threat to the students or others.

7.05 Mandatory Individual or Group Therapy

(a) When individual or group therapy is a program or course requirement, psychologists responsible for that program allow students in undergraduate and graduate programs the option of selecting such therapy from practitioners unaffiliated with the program. (See also Standard 7.02, Descriptions of Education and Training Programs.)

(b) Faculty who are or are likely to be responsible for evaluating students' academic performance do not themselves provide that therapy. (See also Standard 3.05, Multiple Relationships.)

7.06 Assessing Student and Supervisee Performance

(a) In academic and supervisory relationships, psychologists establish a timely and specific process for providing feedback to students and supervisees. Information regarding the process is provided to the student at the beginning of supervision.

(b) Psychologists evaluate students and supervisees on the basis of their actual performance on relevant and established program requirements.

7.07 Sexual Relationships With Students and Supervisees

Psychologists do not engage in sexual relationships with students or supervisees who are in their department, agency, or training center or over whom psychologists have or are likely to have evaluative authority. (See also Standard 3.05, Multiple Relationships.)

8. Research and Publication

8.01 Institutional Approval

When institutional approval is required, psychologists provide accurate information about their research proposals and obtain approval prior to conducting the research. They conduct the research in accordance with the approved research protocol.

8.02 Informed Consent to Research

(a) When obtaining informed consent as required in Standard 3.10, Informed Consent, psychologists inform participants about (1) the purpose of the research, expected duration, and procedures; (2) their right to decline to participate and to withdraw from the research once participation has begun; (3) the foreseeable consequences of declining or withdrawing; (4) reasonably foreseeable factors that may be expected to influence their willingness to participate such as potential risks, discomfort, or adverse effects; (5) any prospective research benefits; (6) limits of confidentiality; (7) incentives for participation; and (8) whom to contact for questions about the research and research participants' rights. They provide opportunity for the prospective participants to ask questions and receive answers. (See also Standards 8.03, Informed Consent for Recording Voices and Images in Research; 8.05, Dispensing With Informed Consent for Research; and 8.07, Deception in Research.)

(b) Psychologists conducting intervention research involving the use of experimental treatments clarify to participants at the outset of the research (1) the experimental nature of the treatment; (2) the services that will or will not be available to the control group(s) if appropriate; (3) the means by which assignment to treatment and control groups will be made; (4) available treatment alternatives if an individual does not wish to participate in the research or wishes to withdraw once a study has begun; and (5) compensation for or monetary costs of participating including, if appropriate, whether reimbursement from the participant or a third-party payor will be sought. (See also Standard 8.02a, Informed Consent to Research.)

8.03 Informed Consent for Recording Voices and Images in Research

Psychologists obtain informed consent from research participants prior to recording their voices or images for data collection unless (1) the research consists solely of naturalistic observations in public places, and it is not anticipated that the recording will be used in a manner that could cause personal identification or harm, or (2) the research design includes deception, and consent for the use of the recording is obtained during debriefing. (See also Standard 8.07, Deception in Research.)

8.04 Client/Patient, Student, and Subordinate Research Participants

(a) When psychologists conduct research with clients/patients, students, or subordinates as participants, psychologists take steps to protect the prospective participants from adverse consequences of declining or withdrawing from participation.

(b) When research participation is a course requirement or an opportunity for extra credit, the prospective participant is given the choice of equitable alternative activities.

8.05 Dispensing With Informed Consent for Research

Psychologists may dispense with informed consent only (1) where research would not reasonably be assumed to create distress or harm and involves (a) the study of normal educational practices, curricula, or classroom management methods conducted in educational settings; (b) only anonymous questionnaires, naturalistic observations, or archival research for which disclosure of responses would not place participants at risk of criminal or civil liability or damage their financial standing, employability, or reputation, and confidentiality is protected; or (c) the study of factors related to job or organization effectiveness conducted in organizational settings for which there is no risk to participants' employability, and confidentiality is protected or (2) where otherwise permitted by law or federal or institutional regulations.

8.06 Offering Inducements for Research Participation

(a) Psychologists make reasonable efforts to avoid offering excessive or inappropriate financial or other inducements for research participation when such inducements are likely to coerce participation.

(b) When offering professional services as an inducement for research participation, psychologists clarify the nature of the services, as well as the risks, obligations, and limitations. (See also Standard 6.05, Barter With Clients/Patients.)

8.07 Deception in Research

(a) Psychologists do not conduct a study involving deception unless they have determined that the use of deceptive techniques is justified by the study's significant prospective scientific, educational, or applied value and that effective nondeceptive alternative procedures are not feasible.

(b) Psychologists do not deceive prospective participants about research that is reasonably expected to cause physical pain or severe emotional distress.

(c) Psychologists explain any deception that is an integral feature of the design and conduct of an experiment to participants as early as is feasible, preferably at the conclusion of their participation, but no later than at the conclusion of the data collection, and permit participants to withdraw their data. (See also Standard 8.08, Debriefing.)

8.08 Debriefing

(a) Psychologists provide a prompt opportunity for participants to obtain appropriate information about the nature, results, and conclusions of the research, and they take reasonable steps to correct any misconceptions that participants may have of which the psychologists are aware.

(b) If scientific or humane values justify delaying or withholding this information, psychologists take reasonable measures to reduce the risk of harm.

(c) When psychologists become aware that research procedures have harmed a participant, they take reasonable steps to minimize the harm.

8.09 Humane Care and Use of Animals in Research

(a) Psychologists acquire, care for, use, and dispose of animals in compliance with current federal, state, and local laws and regulations, and with professional standards.

(b) Psychologists trained in research methods and experienced in the care of laboratory animals supervise all procedures involving animals and are responsible for ensuring appropriate consideration of their comfort, health, and humane treatment.

(c) Psychologists ensure that all individuals under their supervision who are using animals have received instruction in research methods and in the care, maintenance, and handling of the species being used, to the extent appropriate to their role. (See also Standard 2.05, Delegation of Work to Others.)

(d) Psychologists make reasonable efforts to minimize the discomfort, infection, illness, and pain of animal subjects.

(e) Psychologists use a procedure subjecting animals to pain, stress, or privation only when an alternative procedure is unavailable and the goal is justified by its prospective scientific, educational, or applied value.

(f) Psychologists perform surgical procedures under appropriate anesthesia and follow techniques to avoid infection and minimize pain during and after surgery.

(g) When it is appropriate that an animal's life be terminated, psychologists proceed rapidly, with an effort to minimize pain and in accordance with accepted procedures.

8.10 Reporting Research Results

(a) Psychologists do not fabricate data. (See also Standard 5.01a, Avoidance of False or Deceptive Statements.)

(b) If psychologists discover significant errors in their published data, they take reasonable steps to correct such errors in a correction, retraction, erratum, or other appropriate publication means.

8.11 Plagiarism

Psychologists do not present portions of another's work or data as their own, even if the other work or data source is cited occasionally.

8.12 Publication Credit

(a) Psychologists take responsibility and credit, including authorship credit, only for work they have actually performed or to which they have substantially contributed. (See also Standard 8.12b, Publication Credit.)

(b) Principal authorship and other publication credits accurately reflect the relative scientific or professional contributions of the individuals involved, regardless of their relative status. Mere possession of an institutional position, such as department chair, does not justify authorship credit. Minor contributions to the research or to the writing for publications are acknowledged appropriately, such as in footnotes or in an introductory statement.

(c) Except under exceptional circumstances, a student is listed as principal author on any multiple-authored article that is substantially based on the student's doctoral dissertation. Faculty advisors discuss publication credit with students as early as feasible and throughout the research and publication process as appropriate. (See also Standard 8.12b, Publication Credit.)

8.13 Duplicate Publication of Data

Psychologists do not publish, as original data, data that have been previously published. This does not preclude republishing data when they are accompanied by proper acknowledgment.

8.14 Sharing Research Data for Verification

(a) After research results are published, psychologists do not withhold the data on which their conclusions are based from other competent professionals who seek to verify the substantive claims through reanalysis and who intend to use such data only for that purpose, provided that the confidentiality of the participants can be protected and unless legal rights concerning proprietary data preclude their release. This does not preclude psychologists from requiring that such individuals or groups be responsible for costs associated with the provision of such information.

(b) Psychologists who request data from other psychologists to verify the substantive claims through reanalysis may use shared data only for the declared purpose. Requesting psychologists obtain prior written agreement for all other uses of the data.

8.15 Reviewers

Psychologists who review material submitted for presentation, publication, grant, or research proposal review respect the confidentiality of and the proprietary rights in such information of those who submitted it.

9. Assessment

9.01 Bases for Assessments

(a) Psychologists base the opinions contained in their recommendations, reports, and diagnostic or evaluative statements, including forensic testimony, on information and techniques sufficient to substantiate their findings. (See also Standard 2.04, Bases for Scientific and Professional Judgments.)

(b) Except as noted in 9.01c, psychologists provide opinions of the psychological characteristics of individuals only after they have conducted an examination of the individuals adequate to support their statements or conclusions. When, despite reasonable efforts, such an examination is not practical, psychologists document the efforts they made and the result of those efforts, clarify the probable impact of their limited information on the reliability and validity of their opinions, and appropriately limit the nature and extent of their conclusions or recommendations. (See also Standards 2.01, Boundaries of Competence, and 9.06, Interpreting Assessment Results.)

(c) When psychologists conduct a record review or provide consultation or supervision and an individual examination is not warranted or necessary for the opinion, psychologists explain this and the sources of information on which they based their conclusions and recommendations.

9.02 Use of Assessments

(a) Psychologists administer, adapt, score, interpret, or use assessment techniques, interviews, tests, or instruments in a manner and for purposes that are appropriate in light of the research on or evidence of the usefulness and proper application of the techniques.

(b) Psychologists use assessment instruments whose validity and reliability have been established for use with members of the population tested. When such validity or reliability has not been established, psychologists describe the strengths and limitations of test results and interpretation.

(c) Psychologists use assessment methods that are appropriate to an individual's language preference and competence, unless the use of an alternative language is relevant to the assessment issues.

9.03 Informed Consent in Assessments

(a) Psychologists obtain informed consent for assessments, evaluations, or diagnostic services, as described in Standard 3.10, Informed Consent, except when (1) testing is mandated by law or governmental regulations; (2) informed consent is implied because testing is conducted as a routine educational, institutional, or organizational activity (e.g., when participants voluntarily agree to assessment when applying for a job); or (3) one purpose of the testing is to evaluate decisional capacity. Informed consent includes an explanation of the nature and purpose of the assessment, fees, involvement of third parties, and limits of confidentiality and sufficient opportunity for the client/patient to ask questions and receive answers.

(b) Psychologists inform persons with questionable capacity to consent or for whom testing is mandated by law or governmental regulations about the nature and purpose of the proposed assessment services, using language that is reasonably understandable to the person being assessed.

(c) Psychologists using the services of an interpreter obtain informed consent from the client/patient to use that interpreter, ensure that confidentiality of test results and test security are maintained, and include in their recommendations, reports, and diagnostic or evaluative statements, including forensic testimony, discussion of any limitations on the data obtained. (See also Standards 2.05, Delegation of Work to Others; 4.01, Maintaining Confidentiality; 9.01, Bases for Assessments; 9.06, Interpreting Assessment Results; and 9.07, Assessment by Unqualified Persons.)

9.04 Release of Test Data

(a) The term *test data* refers to raw and scaled scores, client/patient responses to test questions or stimuli, and psychologists' notes and recordings concerning client/patient statements and behavior during an examination. Those portions of test materials that include client/patient responses are included in the definition of *test data*. Pursuant to a client/patient release, psychologists provide test data to the client/patient or other persons identified in the release. Psychologists may refrain from releasing test data to protect a client/patient or others from substantial harm or misuse or misrepresentation of the data or the test, recognizing that in many instances release of confidential information under these circumstances is regulated by law. (See also Standard 9.11, Maintaining Test Security.)

(b) In the absence of a client/patient release, psychologists provide test data only as required by law or court order.

9.05 Test Construction

Psychologists who develop tests and other assessment techniques use appropriate psychometric procedures and current scientific or professional knowledge for test design, standardization, validation, reduction or elimination of bias, and recommendations for use.

9.06 Interpreting Assessment Results

When interpreting assessment results, including automated interpretations, psychologists take into account the purpose of the assessment as well as the various test factors, test-taking abilities, and other characteristics of the person being assessed, such as situational, personal, linguistic, and cultural differences, that might affect psychologists' judgments or reduce the accuracy of their interpretations. They indicate any significant limitations of their interpretations. (See also Standards 2.01b and c, Boundaries of Competence, and 3.01, Unfair Discrimination.)

9.07 Assessment by Unqualified Persons

Psychologists do not promote the use of psychological assessment techniques by unqualified persons, except when such use is conducted for training purposes with appropriate supervision. (See also Standard 2.05, Delegation of Work to Others.)

9.08 Obsolete Tests and Outdated Test Results

(a) Psychologists do not base their assessment or intervention decisions or recommendations on data or test results that are outdated for the current purpose.

(b) Psychologists do not base such decisions or recommendations on tests and measures that are obsolete and not useful for the current purpose.

9.09 Test Scoring and Interpretation Services

(a) Psychologists who offer assessment or scoring services to other professionals accurately describe the purpose, norms, validity, reliability, and applications of the procedures and any special qualifications applicable to their use.

(b) Psychologists select scoring and interpretation services (including automated services) on the basis of evidence of the validity of the program and procedures as well as on other appropriate considerations. (See also Standard 2.01b and c, Boundaries of Competence.)

(c) Psychologists retain responsibility for the appropriate application, interpretation, and use of assessment instruments, whether they score and interpret such tests themselves or use automated or other services.

9.10 Explaining Assessment Results

Regardless of whether the scoring and interpretation are done by psychologists, by employees or assistants, or by automated or other outside services, psychologists take reasonable steps to ensure that explanations of results are given to the individual or designated representative unless the nature of the relationship precludes provision of an explanation of results (such as in some organizational consulting, preemployment or security screenings, and forensic evaluations), and this fact has been clearly explained to the person being assessed in advance.

9.11 Maintaining Test Security

The term *test materials* refers to manuals, instruments, protocols, and test questions or stimuli and does not include *test data* as defined in Standard 9.04, Release of Test Data. Psychologists make reasonable efforts to maintain the integrity and security of test materials and other assessment techniques consistent with law and contractual obligations, and in a manner that permits adherence to this Ethics Code.

10. Therapy

10.01 Informed Consent to Therapy

(a) When obtaining informed consent to therapy as required in Standard 3.10, Informed Consent, psychologists inform clients/patients as early as is feasible in the therapeutic relationship about the nature and anticipated course of therapy, fees, involvement of third parties, and limits of confidentiality and provide sufficient opportunity for the client/patient to ask questions and receive answers. (See also Standards 4.02, Discussing the Limits of Confidentiality, and 6.04, Fees and Financial Arrangements.)

(b) When obtaining informed consent for treatment for which generally recognized techniques and procedures have not been established, psychologists inform their clients/patients of the developing nature of the treatment, the potential risks involved, alternative treatments that may be available, and the voluntary nature of their participation. (See also Standards 2.01e, Boundaries of Competence, and 3.10, Informed Consent.)

(c) When the therapist is a trainee and the legal responsibility for the treatment provided resides with the supervisor, the client/patient, as part of the informed consent procedure, is informed that the therapist is in training and is being supervised and is given the name of the supervisor.

10.02 Therapy Involving Couples or Families

(a) When psychologists agree to provide services to several persons who have a relationship (such as spouses, significant others, or parents and children), they take reasonable steps to clarify at the outset (1) which of the individuals are clients/patients and (2) the relationship the psychologist will have with each person. This clarification includes the psychologist's role and the probable uses of the services provided or the information obtained. (See also Standard 4.02, Discussing the Limits of Confidentiality.)

(b) If it becomes apparent that psychologists may be called on to perform potentially conflicting roles (such

as family therapist and then witness for one party in divorce proceedings), psychologists take reasonable steps to clarify and modify, or withdraw from, roles appropriately. (See also Standard 3.05c, Multiple Relationships.)

10.03 Group Therapy

When psychologists provide services to several persons in a group setting, they describe at the outset the roles and responsibilities of all parties and the limits of confidentiality.

10.04 Providing Therapy to Those Served by Others

In deciding whether to offer or provide services to those already receiving mental health services elsewhere, psychologists carefully consider the treatment issues and the potential client's/patient's welfare. Psychologists discuss these issues with the client/patient or another legally authorized person on behalf of the client/patient in order to minimize the risk of confusion and conflict, consult with the other service providers when appropriate, and proceed with caution and sensitivity to the therapeutic issues.

10.05 Sexual Intimacies With Current Therapy Clients/Patients

Psychologists do not engage in sexual intimacies with current therapy clients/patients.

10.06 Sexual Intimacies With Relatives or Significant Others of Current Therapy Clients/Patients

Psychologists do not engage in sexual intimacies with individuals they know to be close relatives, guardians, or significant others of current clients/patients. Psychologists do not terminate therapy to circumvent this standard.

10.07 Therapy With Former Sexual Partners

Psychologists do not accept as therapy clients/patients persons with whom they have engaged in sexual intimacies.

10.08 Sexual Intimacies With Former Therapy Clients/Patients

(a) Psychologists do not engage in sexual intimacies with former clients/patients for at least two years after cessation or termination of therapy.

(b) Psychologists do not engage in sexual intimacies with former clients/patients even after a two-year interval except in the most unusual circumstances. Psychologists who engage in such activity after the two years following cessation or termination of therapy and of having no sexual contact with the former client/patient bear the burden of demonstrating that there has been no exploitation, in light of all relevant factors, including (1) the amount of time that has passed since therapy terminated; (2) the nature, duration, and intensity of the therapy; (3) the circumstances of termination; (4) the client's/patient's personal history; (5) the client's/patient's current mental status; (6) the likelihood of adverse impact on the client/patient; and (7) any statements or actions made by the therapist during the course of therapy suggesting or inviting the possibility of a posttermination sexual or romantic relationship with the client/patient. (See also Standard 3.05, Multiple Relationships.)

10.09 Interruption of Therapy

When entering into employment or contractual relationships, psychologists make reasonable efforts to provide for orderly and appropriate resolution of responsibility for client/patient care in the event that the employment or contractual relationship ends, with paramount consideration given to the welfare of the client/patient. (See also Standard 3.12, Interruption of Psychological Services.)

10.10 Terminating Therapy

(a) Psychologists terminate therapy when it becomes reasonably clear that the client/patient no longer needs the service, is not likely to benefit, or is being harmed by continued service.

(b) Psychologists may terminate therapy when threatened or otherwise endangered by the client/patient or another person with whom the client/patient has a relationship.

(c) Except where precluded by the actions of clients/patients or third-party payors, prior to termination psychologists provide pretermination counseling and suggest alternative service providers as appropriate.

2010 AMENDMENTS TO THE 2002 "ETHICAL PRINCIPLES OF PSYCHOLOGISTS AND CODE OF CONDUCT"

The American Psychological Association's Council of Representatives adopted the following amendments to the 2002 "Ethical Principles of Psychologists and Code of Conduct" at its February 2010 meeting. Changes are indicated by underlining for additions and striking through for deletions. A history of amending the Ethics Code is provided in the "Report of the Ethics Committee, 2009" in the July-August 2010 issue of the *American Psychologist* (Vol. 65, No. 5).

Original Language With Changes Marked

Introduction and Applicability

If psychologists' ethical responsibilities conflict with law, regulations, or other governing legal authority, psychologists make known their commitment to this Ethics Code and take steps to resolve the conflict in a responsible manner. ~~If the conflict is unresolvable via such means, psychologists may adhere to the requirements of the law, regulations, or other governing authority~~ in keeping with basic principles of human rights.

1.02 Conflicts Between Ethics and Law, Regulations, or Other Governing Legal Authority

If psychologists' ethical responsibilities conflict with law, regulations, or other governing legal authority, psychologists clarify the nature of the conflict, make known their commitment to the Ethics Code, and take reasonable steps to resolve the conflict consistent with the General Principles and Ethical Standards of the Ethics Code. ~~If the conflict is unresolvable via such means, psychologists may adhere to the requirements of the law, regulations, or other governing legal authority.~~ Under no circumstances may this standard be used to justify or defend violating human rights.

1.03 Conflicts Between Ethics and Organizational Demands

If the demands of an organization with which psychologists are affiliated or for whom they are working are in conflict with this Ethics Code, psychologists clarify the nature of the conflict, make known their commitment to the Ethics Code, and ~~to the extent feasible, resolve the conflict in a way that permits adherence to the Ethics Code.~~ take reasonable steps to resolve the conflict consistent with the General Principles and Ethical Standards of the Ethics Code. Under no circumstances may this standard be used to justify or defend violating human rights.

Exhibit E:

Confirmed Attorney Coaching Prior to Neuropsychological Evaluation

ASSESSMENT
1995, Volume 2, Number 3, 279-283

Young John, J.R. 1995. Confirmed Attorney Coaching Prior to Neuropsychological Evaluation. Assessment, 2, 3,279-283

CONFIRMED ATTORNEY COACHING PRIOR TO NEUROPSYCHOLOGICAL EVALUATION

James R. Youngjohn
Independent Practice

Even though it has been speculated that attorneys might educate or "coach" their clients prior to forensic neuropsychological examinations, there have been no documented instances of this to date. It might be particularly tempting for attorneys to coach their clients on symptom validity scales. A case in which it was strongly suspected that attorney coaching had occurred is presented. The attorney representing the patient actually admitted to an administrative law judge that he had educated his client prior to examination. Strategies for reducing the effectiveness of attorney coaching, thereby increasing the validity of neuropsychological test results, are suggested.

The effectiveness of psychological validity scales and neuropsychological tests designed to measure cooperation and motivation during evaluation is dependent upon the examinee being naive to the nature and purpose of these instruments. However, because the outcome of forensic psychological and neuropsychological assessment can influence the distribution of considerable amounts of money, professionals involved in the adversarial judicial process, including attorneys and psychologists, might be tempted to "educate" examinees regarding these tests before they are administered. This behavior would clearly be unethical for psychologists, but the ethical restrictions are less clear for attorneys. Indeed, it is felt by some attorneys that a failure to coach clients on symptom validity techniques prior to psychological assessment constitutes legal malpractice (J. Stevenson, personal communication, October 15, 1993).

The author would like to thank Dr. Laurence Binder and Dr. Martha Wetter for their helpful critiques of the manuscript. The author also thanks Todd Lundmark and Kerrie Andersen for their assistance with the legal research and writing.

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Even so, the Arizona Supreme Court Rules of professional conduct for attorneys clearly state that a lawyer shall not falsify evidence or assist a witness to testify falsely and shall not counsel clients to engage in conduct that the lawyer knows is fraudulent (Arizona St S CT Rule 42 RPC ER 1.2 & 3.4, 1994). Even though educating clients regarding psychometric tests has not been specifically addressed, case law also suggests that coaching patients is improper. In *Slottow v. American Casualty Company*, 1 F.3d 912 (9th Cir. 1993), the court discussed the coaching problem. It cited *Betts v. Allstate Insurance Company*, 154 Ca. App. 3d 688, 201 Cal. Rptr. 528 (1984) in which the California state court imposed punitive damages upon Allstate because it had "willfully manipulated its own client through...coaching." Finally, in *State ex rel. Collins v. Superior Court of Arizona*, 132 Arizona 180, 644 P.2d 1266 (1982), the Arizona Supreme Court stated, "Coaching a witness...may run afoul of tenets of ethics this court has promulgated."

In spite of these apparent prohibitions, some authors have speculated that attorney coaching prior to forensic psychological assessment might occur and thereby invalidate the results of these types of evaluations (Ziskin & Faust, 1988). Other

authors have speculated that attorneys might coach clients regarding specific instruments, such as the Minnesota Multiphasic Personality Inventory–2 (MMPI-2; Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989) validity scales (Pope, Butcher, & Selen, 1993). Wetter and Corrigan (in press) surveyed 70 practicing attorneys and discovered that four fifths of them believe that they should educate their clients regarding psychological testing prior to forensic evaluations. One half of the practicing attorneys in the survey felt that they should routinely provide specific information regarding symptom validity scales to their clients prior to psychological testing.

It is common practice for some attorneys and psychologists to show their clients lists of symptoms associated with various psychological disturbances, such as Posttraumatic Stress Disorder and/or closed head injury, before or during examination (C. Miller, personal communication, September 20, 1993; Lees-Haley, 1992). Indeed, a "how to" manual on preparing mild head injury plaintiffs has been published in the legal literature (Taylor, Harp, & Elliott, 1992). However, there has yet to be a confirmed report in the literature of explicit attorney coaching before psychological or neuropsychological assessment. This is not surprising, given the rules governing attorney-client and psychologist-patient privilege.

Even though there are no confirmed reports of attorney coaching, a number of investigators have been sufficiently concerned about the possibility of it that they have conducted analog studies to assess the effects of this practice. These have included analog investigations of the effects of coaching on the MMPI-2 (Lamb, Berry, Wetter, & Baer, 1994; Rogers, Bagby, & Chakraborty, 1993) and the effects of coaching on neuropsychological symptom validity tests (Martin, Bolter, Todd, Gouvier, & Niccolls, 1993; Martin, Gouvier, Todd, Bolter, & Niccolls, 1992). All of these studies have shown that coaching has allowed simulated malingerers to successfully modify their response patterns to appear more like patients with actual disorders, as well as to improve their chances of avoiding detection of their simulation efforts.

Until now, the existence of attorney coaching has been merely speculative. This article describes a case in which attorney coaching was thought to have occurred, with the patient's attorney actually admitting to an administrative law judge that he had educated his client.

Case History

Patient 1 was a 27-year-old college-educated, left-handed man who suffered a minor head injury when an aircraft cargo door fell on him. In the emergency room, he reported a 15 to 20 second loss of consciousness, with no retrograde or posttraumatic amnesia. Doctors' notes reveal that there was "no evident trauma to the head or neck" and the neurologic exam was "completely within normal limits." The patient left the emergency room after about an hour. In spite of the relatively trivial nature of this injury, Patient 1 claimed vague symptoms and disabilities that were persisting more than 2 years later.

A neuropsychological examination was requested by Patient 1's workers' compensation carrier. Patient 1's neuropsychological test scores are presented in Table 1. Inspection of Table 1 reveals the presence of several impaired neuropsychological test performances (e.g., Wechsler Adult Intelligence Scale–Revised [WAIS-R; Wechsler, 1981] and Tactual Performance Test [TPT; Reitan & Wolfson, 1985]), relative to the expected performances of a young man with a bachelor's degree. Two cooperation measures were also administered (see Table 2), the Dot Counting Test (Lezak, 1983) and a short form of the Portland Digit Recognition Test (PDRT; Binder, 1990, 1992, 1993a, 1993b; Binder & Willis, 1991). While Patient 1's response latencies on the ungrouped portion of the Dot Counting Test did not fit the expected performance curve (Lezak, 1983; Rogers, Harrell, & Liff, 1993), his PDRT responses were 100% accurate, suggesting that he was cooperative during testing and that his neuropsychological impairments were valid.

Toward the end of the examination, the patient let it slip that prior to the examination he had been provided with an article written by the examiner

Table 1
Neuropsychological Tests Taken by Patient 1

Test	Score
WAIS-R	
Full Scale IQ	97
Verbal IQ	108
Performance IQ	87
Age Corrected Subtest Scaled Scores	
Information	10
Digit Span	13
Vocabulary	11
Arithmetic	13
Similarities	11
Picture Completion	10
Picture Arrangement	10
Block Design	8
Digit Symbol	4
Trail Making Test A[a]	34 s, 0 Errors
Trail Making Test B[a]	67 s, 0 Errors
Finger Tapping Test[a]	
Right hand	46.8
Left hand	43.8
Grip Strength[a]	
Right hand	49.5
Left hand	44.5
Sensory Perceptual Examination[a]	
Total errors	1
Tactual Performance Test[a]	
Right hand	9 min
Left hand	8 min
Both hands	2.7 min
Total time	19.7 min
Memory	7
Location	6
Wechsler Memory Scale[b]	
Logical Memory Immediate Raw Score	31
Delayed Raw Score	25

[a]Reitan and Wolfson (1985). [b]Wechsler (1945).

Table 2
Symptom Validity Tests Taken by Patient 1

Test	Score
Dot Counting Test	
Total Errors	0
Ungrouped Out of Sequence Response Latencies	2
Response Latency on Grouped Card Equal or in Excess of Analogous Ungrouped Card	0
Portland Digit Recognition Test	
5 s Delay	9 of 9 Correct
15 s Delay	9 of 9 Correct
30 s Delay	18 of 18 Correct

(Youngjohn, 1991) describing the nature of the PDRT. Upon further questioning, he indicated that he had a life-long interest in neuropsychology and that he had been given the article by a "friend from New York." This statement was felt to have low credibility. Indeed, Patient 1's attorney, who was not from New York, admitted to the administrative law judge presiding over proceedings at the Industrial Commission of Arizona that he had supplied the article to his client. While Patient 1 lost his case, his attorney was not subjected to any rebuke, disciplinary action, or even comment from the judge.

Discussion

The patient described in this report sustained a mild head injury at most by all criteria. The head injury outcome literature (e.g., Dikmen, Machamer, Winn, & Temkin, 1995) suggests that persisting disability more than 2 years later would be highly unusual after an injury of this severity. When patients who have suffered mild head injuries complain of severe, persisting disability, these complaints may frequently be a function of their pursuit of financial compensation, rather than actual neuropsychological deficits (Youngjohn, Burrows, & Erdal, 1995).

Psychologists and neuropsychologists performing forensic examinations typically assume that their patients have not been prepared or "educated" prior to examination. This assumption may not be accurate in every case. Indeed, Wetter and Corrigan's (in press) survey of practicing attorneys suggests that forensic patients who have not been prepared for the examination by their attorneys before it takes place may be the exception, rather than the norm.

The present case and previous analog studies demonstrate that attorney coaching not only occurs, but that it can help malingerers avoid detection. Consequently, it is recommended that those forensic psychologists and neuropsychologists who want to protect the validity of their data not rely exclusively on one or two measures of cooperation and/or symptom validity scales.

Ideally, a cooperation/validity battery should include multiple instruments that change frequently. Fortunately, this is presently a popular area of test development. Future researchers are encouraged to continue to create new, effective instruments to measure motivation and validity of self-report during examination.

Finally, psychologists who have evidence of attorney coaching are urged to consider filing a complaint with their state bar. Psychologists are ethically obligated to maintain test security. The practice of attorney coaching could potentially undermine the usefulness of psychometric evidence and psychological expert testimony to the courts.

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Exhibit F:

The effect of a third party observer and trait anxiety on neuropsychological performance: the Attentional Control Theory (ACT) perspective

and

Effects of a third party observer and anxiety on tests of executive function

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The effect of a third party observer and trait anxiety on neuropsychological performance: the Attentional Control Theory (ACT) perspective

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ABSTRACT

Objective: Studies have reported that the presence of a third party observer (TPO) during neuropsychological assessments negatively affects the test performance of the examinee. The present study aimed to investigate the effects of a TPO and trait anxiety on neuropsychological performance according to Attentional Control Theory (ACT). **Method:** A sample of college students was recruited (n = 318) and then 80 participants were selected to represent the high and low trait anxiety groups. Participants of each of group were randomly assigned to either the NTPO (non-TPO) or TPO conditions. The State-Trait Anxiety Inventory – Trait measure (STAI-T), Wisconsin Card Sorting Test (WCST-64), Stroop test, and Rating Scale for Mental Effort (RSME) were administered to both groups. To analyze the data, univariate ANOVAs were conducted. **Results:** The results indicated that under the conditions without a TPO the group with high trait anxiety had poorer processing efficiency, but under the conditions with a TPO they had poorer processing efficiency and poorer performance effectiveness than the group with low trait anxiety. In addition, the group with low trait anxiety showed poorer processing efficiency in the TPO compared to non-TPO condition. **Conclusions:** These findings provide support for the hypotheses of ACT regarding the relation between observer presence and poorer performance on neuropsychological tests, with individuals with higher trait anxiety showing greater negative effects. Implications and suggestions for further research are discussed.

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Attentional Control Theory; performance effectiveness; processing efficiency; third party observer; trait anxiety

Introduction

Third party observer (TPO) is a term used in psychological assessment that is best described as an individual whose sole purpose is to observe (and perhaps document) – but not affect – the psychological evaluation (Otto & Krauss, 2009). An observer has been found to affect an individual's performance on a variety of activities (Gavett, Lynch, & McCaffrey, 2005). The presence of a third party observer in the exam room during neuropsychological assessments is an issue that has occupied contemporary neuropsychologists (McCaffrey, Lynch, & Yantz, 2005). In some cases, conditions arise when a third party (e.g. a legal delegate, parents, or a test overseer) requests to observe the neuropsychological assessment along with the testing

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professional and the participant. In these situations, there are a number of ethical issues for neuropsychologists, especially regarding security of tests, standardized test administration plans, normative data applicability, and most importantly, concerns relating to the impact of a TPO on test performance (Howe & McCaffrey, 2010; Otto & Krauss, 2009). Previous studies which dealt with the effect of the TPO in the context of neuropsychological testing have shown that TPO is related to a poorer performance on measures of memory and learning including perseverative errors on the Rey Auditory-Verbal Learning Test (Kehrer, Sanchez, Habif, Rosenbaum, & Townes, 2000), attention, executive functions, and fluency; alternately, it has also been associated with faster performance on simple motor measures (Constantinou, Ashendorf, & McCaffrey, 2005; Gavett & Mccaffrey, 2007; Horwitz & Mccaffrey, 2008; Kehrer et al., 2000; Lynch, 2005; Yantz & McCaffrey, 2009).

Most of the studies mentioned above have investigated the effects of a TPO on the performance of neuropsychological tests at the group level, while only a few studies in the neuropsychological literature have investigated the contribution of individual examinee characteristics such as anxiety and TPO on neuropsychological test performance. The relationship between anxiety and reduced cognitive performance has been considered by several researchers (for reviews, see Eysenck & Calvo, 1992; Eysenck, Derakshan, Santos, & Calvo, 2007; Sarason, Sarason, & Pierce, 1990). Most recently, Attentional Control Theory (ACT; Eysenck et al., 2007) has created considerable research interest, and many of its main hypotheses have received empirical support (Berggren & Derakshan, 2013; Derakshan & Eysenck, 2009; Eysenck & Derakshan, 2011). According to ACT, anxiety consumes resources within the limited capacity working memory system. Following Baddeley's (1986) working memory model, ACT assumes that under high cognitive load processing, performance on tasks that involve inhibition and shifting functions of the central executive system are adversely affected by anxiety (Miyake & Friedman, 2012). ACT also makes predictions regarding how these deficits will be manifested by drawing an important distinction between performance effectiveness and processing efficiency. Effectiveness refers to the quality of task performance indexed by standard behavioral measures (generally, response accuracy). In contrast, efficiency refers to the effort or resources spent in task performance (generally, completion time and mental effort), with efficiency decreasing as more resources are invested to attain a given performance level (Eysenck et al., 2007).

ACT predicts that efficiency will always be impaired by anxiety before effectiveness. This means that anxiety will not affect effectiveness under conditions in which anxious individuals are able to use additional processing resources (e.g. through increased mental effort and completion time) which enables them to perform at a similar level of accuracy to those lower in anxiety. In other words, if additional processing resources are available, impaired performance effectiveness is less likely to occur but at the cost of reduced efficiency. If these resources are unavailable, especially in the performance conditions that the worry and other irrelevant thoughts to the task are activated, performance effectiveness will be impaired (Edwards, Moore, Champion, & Edwards, 2015; Eysenck & Derakshan, 2011).

TPO is a performance condition (e.g. see Kehrer et al., 2000). According to ACT, performance conditions trigger worry and irrelevant thoughts to the task. The worrisome thoughts consume the limited attentional resources of working memory and make them less available for concurrent task processing, then impair the performance on a concurrent task (e.g. see Eysenck & Calvo, 1992).

Therefore, it is important the effect of TPO be considered according to ACT assumptions. Many previous studies have observed that anxiety impairs performance on neuropsychological tests (Edwards et al., 2015; Iorfino, Hickie, Lee, Lagopoulos, & Hermens, 2016; Johnson & Gronlund, 2009; Modi, Kumar, Kumar, & Khushu, 2015; Sharp, Miller, & Heller, 2015; Yochim, Mueller, & Segal, 2013), and the presence of a TPO impairs performance on neuropsychological tests (Howe & McCaffrey, 2010; Yantz & McCaffrey, 2009). The present study aims to explore the possible role of anxiety as a mediating factor of neuropsychological performance in the presence of a third party according to the assumptions of the ACT (Eysenck et al., 2007). Drawing on ACT, we predict that high trait anxiety (but not low trait anxiety) impairs processing efficiency under both conditions of presence of an observer and non-presence of an observer. Also, performance effectiveness is likely to suffer only in the presence of observers in the high trait anxiety group.

Method

Participants

Three steps were conducted to choose participants who were truly representative of the groups with high and low trait anxiety. In the first step, a sample of first year female Persian speaking college students from Shiraz University, Iran, were selected ($n = 318$) through a multi-stage sampling method[1]. The participants completed the trait measure of the State-Trait Anxiety Inventory (Spielberger, Goruch, Lushene, Vagg, & Jacobs, 1983). In the second step, after scoring, in accordance with the previous studies were used the 25th percentile (i.e. Alves et al., 2007), so that the participants belonging to the upper 25% of the distribution ($n = 81$) and the participants belonging to the lower 25% of the distribution ($n = 79$) were selected. Then, with regard to the exclusion criteria and emphasizing the right of voluntary participation in this study, 42 participants from the upper 25% of the distribution who have highest trait anxiety scores (scores between 50 and 69) were assigned to the high trait anxiety group and 42 participants from the lower 25% of the distribution who have lowest trait anxiety scores (scores between 20 and 36) were assigned to the low trait anxiety group. In the third step, the scores of the samples were rechecked to ensure that their scores were consistent with the cut-off points in the previous research (i.e. Alves et al., 2007; Amiri, Mohamadpour, Salmalian, & Ahmadi, 2010; Byrne & Eysenck, 1995; Walkenhorst & Crowe, 2009). It was apparent that the scores of high trait anxiety group were the higher the cut-off point in the literature and the scores of low trait anxiety group were the lower the cut-off point in the literature.

Data from two participants in the high trait anxiety group and two participants in the low trait anxiety group were discarded for the following reasons: two participants withdrew before completing all tests, one of them was not present at the designated time, and one case was discarded due to experimenter error. Thus, 80 participants were included in the final analysis, 40 in high trait anxiety group (mean age: $19.16 \pm .52$ years; scale scores: 59.3 ± 2.9), and 40 in low trait anxiety group (mean age: $19.28 \pm .6$ years; scale scores: 31.1 ± 3.2).

Participants were excluded if they had: 1) a history of substance abuse, 2) a head injury that resulted in a loss of consciousness, 3) a medical illness that could affect neuropsychological performance, 4) a psychiatric/psychological condition that could affect

neuropsychological performance, and 5) used psychiatric drugs that could affect neuropsychological performance or cognitive functioning.

The study was approved by the research ethics board of Faculty of Educational Sciences of Shiraz University. Written consents were received from the participants to participate in the testing.

Measures

State-Trait Anxiety Inventory Form Y (STAI-T – Form Y)

The trait (STAI-T) version of the State-Trait Anxiety Inventory was used to assess trait anxiety (Spielberger et al., 1983). The STAI-T comprises 20 statements that provide an index of how participants 'generally' feel. For each item, participants were requested to give a graded response to self-descriptive statements. Responses for each item range from 1–4, resulting in total scores ranging from 20 to 80, with higher scores reflecting higher levels of trait anxiety.

The STAI-T has reported test–retest reliability over a 104-day period of ≥.73 (Spielberger et al., 1983). In general, the Iranian version of the STAI-T can be considered reliable and valid. Cronbach's alpha of the test has been found to be .86, and convergent validity with the Taylor Manifest Anxiety Scale has been found to be .85 (Sharifi, 2003).

Wisconsin Card Sorting Test-64 (WCST-64)

The WCST-64 (Kongs, Thompson, Iverson, & Heaton, 2000) is a card-sorting task generally accepted to measure cognitive flexibility – specifically, interference control, problem solving, and shifting response in accord with feedback (Topçuoğlu, Fistikci, Ekİnci, Gönentür, & Agourİdas, 2009). In this study the following scores are used in the evaluation of WCST-64 performance: total number of errors (number of cards that are not matched correctly with a stimulus card); number of perseverative errors (incorrect perseverative responses); and categories achieved (number of categories in which 10 consecutive correct matches were made).

In the present study, the three scores mentioned above were used to assess performance effectiveness and time to complete the task was used as a measure of processing efficiency. Lezak (1995) reported the validity of this test to measure cognitive deficits after brain damage was good ($r = .86$). The test–retest reliability of this test in an Iranian population was also high ($r = .85$; Ghadiri, Jazayeri, Ashayeri, & Ghazi Tabatabaei, 2006).

Stroop color-word test

The Stroop test (Stroop, 1935) is the best-known of a larger class of Stimulus- Stimulus/ Stimulus-Response compatibility tasks (Kornblum, 1992). In this study completion time was used as a measure of processing efficiency. The overall number of errors served as a measure of performance effectiveness. The Stroop has been validated with both clinical and healthy samples and demonstrates good test–retest reliability (Dikmen, Heaton, Grant, & Temkin, 1999; Golden & Freshwater, 2002) and the Iranian version of the Stroop test demonstrates good validity and reliability (Zarghi, Zali, Tehranidost, Zarindast, & Khodadadi, 2011).

Rating scale for mental effort (RSME)

Zijlstra (1993) described the RSME as a suitable self-report measure of mental effort in which participants are asked to mark a point on the scale that reflects the amount of mental effort spent on task performance. The RSME consists of a vertical axis scale with a range of 0–115, with nine descriptive pointers ranging from 3 (not effortful) to 114 (awfully effortful).

The reliability of the scale across a range of laboratory and real-life situations has been shown to be acceptable in laboratory ($r = .88$) and in work situations ($r = .78$) (Zijlstra, 1993). The scale has also been found to correlate strongly with validated psychophysiological indices of mental effort such as spectral variations in heart period variability (Zijlstra, 1993). The Persian version of this scale which was used in this study has satisfactory psychometric properties. Hosseini Ramaghani, Hadian Fard, Taghavi, and Aflaksair (2015) reported the test–retest reliability of this instrument as .86. Moreover, RSME along with time to complete the tasks were used to assess the processing efficiency.

Procedure

The high trait anxiety (HTA) and low trait anxiety (LTA) participants were randomly assigned to a condition with TPO (TPO) or a condition without TPO (NTPO), resulting in a 2 (trait anxiety: low vs. high) × 2 (TPO condition: TPO vs. NTPO) between-participants design. There were 20 participants in each of the four conditions: low trait anxiety/no TPO (LTA/NTPO), low trait anxiety/TPO (LTA/TPO), high trait anxiety/no TPO (HTA/NTPO), and high trait anxiety/TPO (HTA/TPO).

Following Horwitz and Mccaffrey (2008), the present study used the same examiner for both groups, and all tests were administered while the same observer was present during the administration of the tests. A female observer and a female examiner were recruited to perform the present study.

Regarding the presence of the observer, participants were informed that an observer would be in the room, although the reason for the observer's presence was not clear to either examinees or the examiner. The observer sat approximately 1 meter behind the examinee on the left side, facing the examiner. Although the observer took occasional notes during testing, she did not interrupt or directly interfere with the testing process, and tried to remain as unobtrusive as possible. After each participant performed the Wisconsin and Stroop tasks according to standard procedures, she was given the mental effort scale to estimate the invested amount of the mental effort. Each testing session lasted approximately 45 min for both groups.

Results

The data were analyzed using univariate 2-way ANOVAs using WCST-64 and Stroop effectiveness and efficiency indices as dependent variables, and group (HTA vs. LTA) and condition (TPO vs. NTPO) as independent variables. ANOVAs were followed up with *post hoc* Tukey's tests when appropriate. Table 1 shows the descriptive statistics for performance effectiveness and efficiency of processing on the WCST-64 and Stroop tests.

Table 1. Group means and standard deviations for observation condition and trait anxiety groups.

Measure		Groups ($N = 80$)			
		HTA ($n = 40$)		LTA ($n = 40$)	
		TPO ($n = 20$)	NTPO ($n = 20$)	TPO ($n = 20$)	NTPO ($n = 20$)
Effectiveness	WCST-64-Category	4.20(1.15)	4.10(1.33)	4.00(1.41)	3.80(1.43)
	WCST-64-Preservation error	9.10(1.44)	8.95(1.43)	9.20(2.06)	9.00(1.68)
	WCST-64-Total error	22.20(3.90)	22.60(3.34)	22.55(3.83)	28.00(4.70)
	Stroop-Total error	1.70(.76)	1.90(.78)	2.00(.85)	3.60 (.67)
Efficiency	WCST-64-Effort	49.70(10.15)	60.00(11.80)	61.25(11.23)	71.25(12.31)
	WCST-64–Time (min)	19.75(9.58)	28.50(11.10)	31.75(11.30)	41.70(9.77)
	Stroop-Effort	48.25(6.93)	58.50(11.80)	59.50(10.80)	68.75(10.90)
	Stroop-Time (s)	371.20(30.30)	322.00(17.35)	416.50(39.63)	451.00(23.42)

Notes: LTA: low trait anxiety; HTA: high trait anxiety; NTPO: condition without third-party observer; TPO: condition with third-party observer; WCST-64: Wisconsin Card Sorting Test-64; Time: test completion time; Effort: invested mental effort on the Rating Scale for Mental Effort (RSME).

Table 2. F value and Effect sizes (η^2) for univariate comparisons for performance effectiveness and efficiency of processing in the Wisconsin Card Sorting test and Stroop test.

Dependent variable		F value (η^2) of Source		
		Group	Condition	Group*condition
Effectiveness	WCST-64-Categories	.69 (Ns)	.25(Ns)	.02(Ns)
	WCST-64-Perseverative	.04(Ns)	.21(Ns)	.04(Ns)
	WCST-64-Total error	8.98(.11)**	9.29(.11)**	6.29(.09)**
	Stroop-Total error	14.68 (.16)**	11.16 (.13)**	8.37(.09)**
Efficiency	WCST-64-Effort	19.80(.20)**	15.72(.17)**	.02(Ns)
	Stroop-Effort	21.66(.22)**	17.82(.19)**	.82(Ns)
	WCST-64-Time (min)	33.38(.30)**	18.41(.19)**	.77(Ns)
	Stroop-Time (s)	181.68(.70)**	1.29(Ns)	41.89(.35)**

Note: **$p < .01$; WCST-64: Wisconsin Card Sorting Test-64; Time: test completion time; Effort: invested mental effort on the Rating Scale for Mental Effort (RSME).

Effectiveness

Univariate 2-way ANOVAs (see Table 2) indicated that, using the WCST-64 total errors as the dependent variables, there was a main effect for both group ($F = 8.98$, $\eta^2 = .11$) and condition ($F = 9.29$, $\eta^2 = .11$). There was also a significant interaction between group and condition ($F = 6.29$, $\eta^2 = .09$, all $p < .01$). However, no statistical significant results emerged for the other WCST-64 variables (i.e. categories and perseverative errors). Regarding performance effectiveness on the Stroop test, main effects for group and condition were also found ($F = 14.68$, $\eta^2 = .16$; and $F = 11.16$, $\eta^2 = .13$, respectively) as well as a significant interaction effect ($F = 8.37$, $\eta^2 = .09$, all $p < .01$).

To examine the nature of the interactions, *post hoc* comparisons were conducted using Tukey's test. These analyses showed that participants who were in the TPO condition and exhibited HTA made more errors on both the WCST-64 and the Stroop test, as compared to those who were in the NTPO condition or those who exhibited LTA (all p values $< .001$). These results suggest that the presence of a TPO is associated with greater impairment of performance effectiveness (i.e. fewer errors) on the WCST-64 and Stroop test among the HTA group as compared with the LTA group (see Figures 1 and 2). This means that the TPO effect on performance effectiveness on the WCST-64 and Stroop test may be influenced by trait anxiety level.

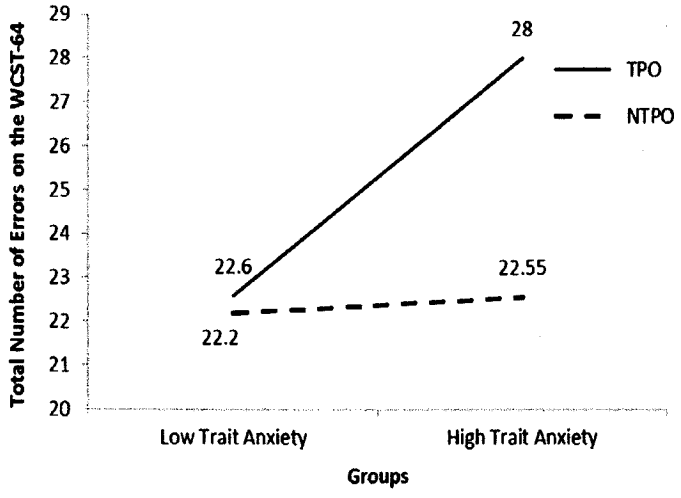

Figure 1. Observation condition by trait anxiety interaction on performance effectiveness in the Wisconsin Card Sorting Test-64; NTPO: condition without third-party observer; TPO: condition with third-party observer; sample sizes in each group and condition = 20.

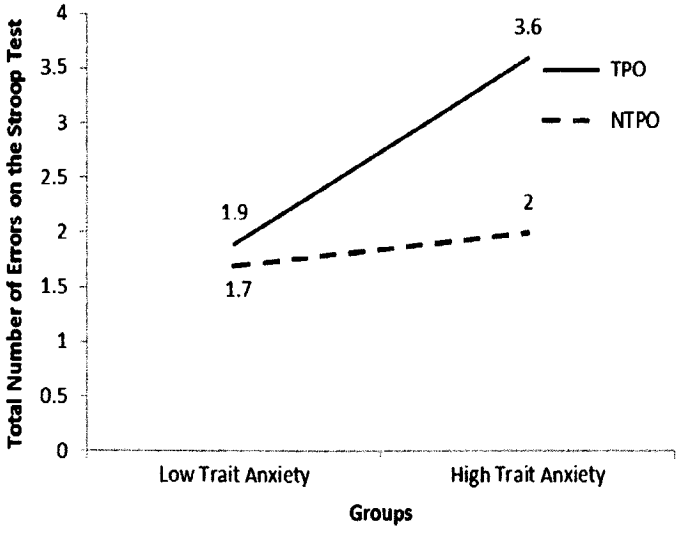

Figure 2. Observation condition by trait anxiety interaction on performance effectiveness in the Stroop test; NTPO: condition without third-party observer; TPO: condition with third-party observer; sample sizes in each group and condition = 20.

Efficiency

For invested effort on the WCST-64, univariate 2-way ANOVAs (see Table 2) indicated that there was a main effect for both group and condition ($F = 19.8, \eta^2 = .20, p < .01$; and $F = 15.72$, $\eta^2 = .17$, $p < .01$, respectively), such that TPO condition was associated with greater effort investment than NTPO, and HTA was associated with greater effort investment than LTA. There was not, however, a significant interaction between group and condition ($F = .02, \eta^2 = .00$). For invested mental effort on the Stroop test, there were again significant main effects for group and condition ($F = 21.66, \eta^2 = .22, p < .01$; and $F = 17.82, \eta^2 = .19, p < .01$, respectively), such that, again, greater effort was associated with TPO condition and HTA group. Again, however, there was no significant interaction between group and condition ($F = .82, \eta^2 = .001$).

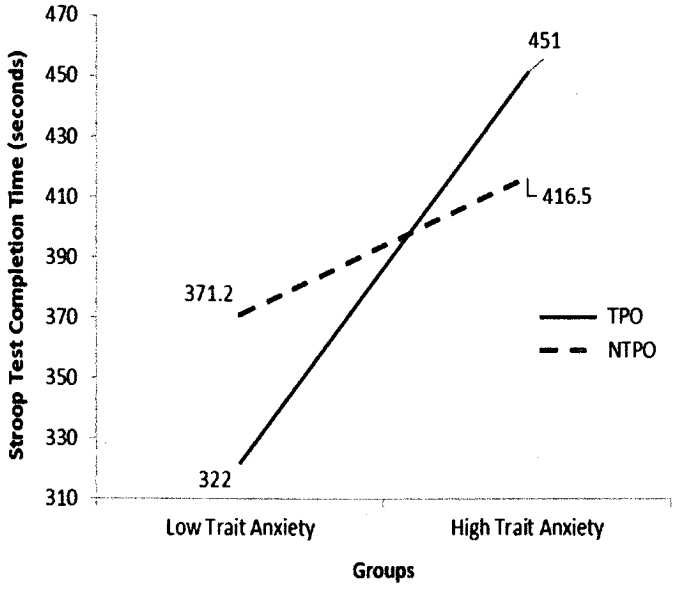

Figure 3. Observation condition by trait anxiety interaction on efficiency of processing (completion time) in the Stroop test; NTPO: condition without third-party observer; TPO: condition with third-party observer; sample sizes in each group and condition = 20.

For invested time (i.e. the completion time) on the WCST-64, there were again significant main effects for group and condition ($F = 33.38, \eta^2 = .30, p < .01$; and $F = 18.41, \eta^2 = .19, p < .01$, respectively) such that completion time was longer for the TPO condition and HTA group; again, there was no significant interaction between group and condition ($F = .77, \eta^2 = .001$). Finally, for invested time (i.e. completion time) on the Stroop test, there was a significant main effect for group and an interaction between group and condition ($F = 181.68, \eta^2 = .70$, $p < .01$; and $F = 41.89, \eta^2 = .35, p < .01$, respectively), but no significant main effect of condition ($F = 1.29, \eta^2 = .017$). To examine the nature of this interaction, *post hoc* comparisons using Tukey's test were performed. The results indicated that all four groups (HTA/TPO, LTA/TPO, HTA/NTPO, LTA/NTOP) differed from each other (all p values < .003), such that the TPO condition was associated with greatest investment of time on the Stroop test among the HTA individuals and the least investment of time among the LTA individuals. See Figure 3.

Discussion

The present study investigated the effects of trait anxiety and TPO on the effectiveness and efficiency of performance on neuropsychological tests. Specifically, the assumptions of ACT were tested regarding in which circumstances there would be dysfunction of the central executive system on complex cognitive tasks under performance conditions.

The results indicated that in the two conditions of with and without a TPO, there was a significant difference in the amount of mental effort and time invested in those with HTA vs. LTA. Although the group with high trait anxiety invested more mental effort compared with the group with low trait anxiety, the interaction between anxiety level and TPO conditions was not significant. This indicates that even the group with low trait anxiety invested both more mental effort and time in the TPO condition compared with the NTPO condition. In other words, the presence of a TPO led to a decrement in the processing efficiency in both

groups, whether they had high or low trait anxiety. Results suggested that the TPO effect produces the need for more mental effort (both during the WCST-64 and Stroop test) and invested time (only on the WCST-64) regardless of trait anxiety level. On the Stroop test, however, the TPO effect produces the need for more time in those with high trait anxiety and less time in those with low trait anxiety.

Results also indicated that in the NTPO condition there was no significant difference between the two groups regarding performance effectiveness. When a TPO was present, the group with high trait anxiety made a higher number of total errors on both tests administered as compared with the group with low trait anxiety. This means with the presence of a TPO, the group with high trait anxiety has poorer performance effectiveness. Therefore, performance effectiveness in the TPO condition was adversely affected by the trait anxiety level.

Results are in line with a number of the central assumptions of ACT (Eysenck et al., 2007). The results confirm that anxiety creates more deficiency in processing efficiency than performance effectiveness on tasks involving the central executive system. The finding that trait anxiety did not impair performance effectiveness in the NTPO condition supports the ACT assumption that individuals with high trait anxiety might deploy greater task effort, enabling their performance effectiveness to be indistinguishable from those lower in anxiety (Edwards et al., 2015).

The finding that performance effectiveness (i.e. the number of total errors on the WCST-64 and Stroop test) in individuals with high trait anxiety was adversely affected by the presence of a TPO can be explained using the assumptions of ACT. ACT hypothesizes that worry is activated in stressful situations (especially in evaluative, performance, or monitoring conditions) and is most likely to occur in individuals with high trait anxiety. Worry has two effects; firstly, worrisome thoughts expend the limited attentional resources of working memory, so there are less available resources for concurrent task processing. Secondly, it involves increased motivation to minimize the detrimental anxiety (e.g. increased mental effort). Thus, processing efficiency is more impaired than performance effectiveness in these conditions. If auxiliary resources are unavailable, then performance effectiveness will be impaired (Eysenck et al., 2007). In this study, the presence of a TPO can act as a performance or stressful situation that leads to an increase in the production of worrisome thoughts. Consequently, these thoughts consume available auxiliary resources, and as a result there remain less available resources for concurrent task processing which then leads to a deficiency in performance effectiveness.

However, another result, which at first glance seems inconsistent with ACT, is the fact that in the group with low trait anxiety in the presence of an observer there was impaired processing efficiency. This was manifested as more mental effort both on the WCST-64 and on the Stroop test as well as more invested time, although this was only on the WCST-64. This finding is compatible with previous studies regarding the effects of TPO on neuropsychological test performance (e.g. Otto & Krauss, 2009; Yantz & McCaffrey, 2009). The primary difference is that these studies only examined the effects of a TPO on performance and did not examine the interaction of anxiety with presence of a TPO. Therefore, results of the present study suggest that the TPO effect produces the need for more mental effort regardless of trait anxiety level.

In explaining this finding that the LTA/TPO group improved in processing efficiency on the Stroop test, the hypothesis would be that the presence of a TPO provided additional

motivational function so the optimal level of arousal for high level performance was reached. An alternative explanation is that perhaps speed-driven tasks (e.g. Stroop test) may be differentially affected by an observer, which would be consistent with studies examining the effect of an observer on speed and physical performance (Eastvold, Belanger, & Vanderploeg, 2012). So since processing efficiency on the Stroop test (but not the WCST-64) in the LTA/TPO group was better than the LTA/NTPO group it can be inferred that the effect of trait anxiety levels on processing efficiency in the presence of an observer vary depending on task characteristics.

According to the findings of this study it is recommended that when a TPO is present during neuropsychological evaluations the evaluee's level of trait anxiety be considered. If a person's level of trait anxiety is high, his performance (both processing efficiency and performance effectiveness) is probably weaker than if a TPO was not present (regardless of the task characteristics). But if a person's level of trait anxiety is low, the individual can be encouraged to increase motivation and minimize the effect of having a TPO present (e.g. through increased mental effort). In this case, processing efficiency is impaired but performance effectiveness should be indistinguishable from normal testing conditions. Also, for an individual with low trait anxiety test characteristics must be noted so that possible improved performance on speed-driven tasks can be taken into consideration.

Future studies can shed light on other possible factors which may influence variation in performance on an individual level when a TPO is present. Since the effect of TPO is a form of social influence that could differ from one culture to another, generalization of these findings should be made with caution. A limitation of this study is that all participants were first year female college students. It is suggested that future research be conducted on the effects of observer presence and anxiety on performance on neuropsychological tests in other populations.

Note

1. Multistage sampling is a type of sampling which involves dividing the population into groups (or clusters). Then, one or more clusters are chosen at random and everyone within the chosen cluster is sampled. The technique is used frequently when a complete list of all members of the population does not exist and is inappropriate.

Disclosure statement

No potential conflict of interest was reported by the authors.

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Effects of a third party observer and anxiety on tests of executive function☆,☆☆

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Abstract

For the past 10 years, research on the effects of observer presence on test performance has expanded in the neuropsychological literature. Previous studies have shown that the presence of a third party observer is associated with poorer performance on tests of effort, attention, concentration, learning, and memory. The present study was designed to investigate whether performance on tests of executive function is similarly impaired by the presence of a third party observer. The study also sought to examine associations among examinee anxiety, observer presence, and performance. Seventy-nine college undergraduates were recruited for the study, and 70 were included in the final analyses. Participants were randomly assigned to either the observation or control condition, and were administered verbal fluency tests, the Trail Making Test (parts A and B), and the Tactual Performance Test, as well as the Fear of Negative Evaluation scale and State-Trait Anxiety Inventory. Multivariate analyses of variance revealed that performance on the combined dependent variables was significantly associated with observer presence. A significant observation condition by trait anxiety interaction was also found. Univariate analyses revealed that performances on semantic fluency and TPT-localization were most strongly associated with observation and trait anxiety, with performance being poorer in the presence of a third party observer. Additionally, effects of trait anxiety on performance in the presence of an observer appear to vary depending on task characteristics. Implications and suggestions for further research are discussed.

Keywords: Third party observer; Social facilitation; Anxiety; Tactual performance test; Trail making test; Verbal fluency

In the past decade, considerable attention has been given to research on the effects of third party observers on neuropsychological test performance (McCaffrey, Lynch, & Yantz, 2005). The expanding repertory of studies demonstrating significant effects has led to the assertion by many neuropsychologists and neuropsychological associations that third party observation of neuropsychological examinations violates standardized testing procedures, jeopardizes test security, renders interpretation of norms less valid, and may be a breach of ethics and/or standards (e.g., AERA, APA, & NCME, 1999; Axelrod et al., 2000; Essig, Mittenberg, Petersen, Strauman, & Cooper, 2001; Hamsher, Lee, & Baron, 2001; McCaffrey, 2005; McSweeny et al., 1998). Issues surrounding third party observation are particularly salient for the field of forensic neuropsychology, given that attorneys often request to observe evaluations of their

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clients, and in some cases are legally allowed to do so (e.g., Essig et al., 2001; Lynch & McCaffrey, 2004; McSweeny et al., 1998).

Research in the area of third party observation first entered the neuropsychological literature when Binder and Johnson-Greene (1995) published a case study on a woman who demonstrated impaired performance on the Portland Digit Recognition Test, a test of effort, in the presence of her mother. Subsequent studies sought to examine the effects of a third party observer on performance on a variety of other tests assessing various neuropsychological domains. These studies have suggested that the presence of a third party observer may lead to impaired performance on tests of learning and memory, including number of perseverative errors on the Rey Auditory-Verbal Learning Test (Kehrer, Sanchez, Habif, Rosenbaum, & Townes, 2000) and number of words recalled at delay on the Verbal Paired Associates subtest from the Wechsler Memory Scale – Revised (Lynch, 2005). Impaired performance on tests of memory has also been found when the third party observer is an audiotape recorder (Constantinou, Ashendorf, & McCaffrey, 2002), a videotape recorder (Constantinou, Ashendorf, & McCaffrey, 2005), or a supervisor explicitly attending to the examiner rather than the examinee (Yantz & McCaffrey, 2005). Studies have also demonstrated impaired performance in the presence of a third party observer on tests of attention, sustained concentration, response inhibition, and verbal fluency, including digit span, the Paced Auditory Serial Addition Task, the Stroop color-word test, and the Controlled Oral Word Association Test (Kehrer et al., 2000). However, performance on the Trail Making Test (TMT) parts A and B, tests of attention and set-shifting, has not been found to be affected by the presence of a third party observer (Kehrer et al., 2000; Lynch, 2005), nor have tests of motor function including the Finger Tapping Test (FTT), Grooved Pegboard, and grip strength (Constantinou et al., 2005; Kehrer et al., 2000; Lynch, 2005). Interestingly, use of motor measures at the beginning of the testing session in attempt to facilitate adaptation to the testing process has been found to be effective only when a third party observer is not present, as unobserved examinees given an adaptation period performed better on a paired list learning task as compared with unobserved examinees not given an adaptation period and with observed examinees, regardless of whether an adaptation period was given (Gavett & McCaffrey, 2007).

Although the aforementioned studies have investigated the effects of a third party observer on neuropsychological test performance at the group level, no published studies in the neuropsychological literature have examined the contribution of individual examinee characteristics. One feature that can be expected to have a role in modulating the effects of social facilitation is the examinee's anxiety. However, comparisons of performance of individuals high and low in anxiety under observed and unobserved conditions in the social psychology literature have been somewhat inconclusive. For example, while Ganzer (1968) found that more highly anxious individuals demonstrated impairments particularly during the initial and later stages of learning on a nonsense syllable list-learning task, Martens (1969) found that high anxiety participants learned a complex motor task more quickly than those participants low in trait anxiety. Conflicting findings such as these suggest that a number of other variables may also contribute to the effects that an individual's anxiety will have on his or her performance, including whether a given test is timed. For instance, Siegman (1956) found that participants high in anxiety performed significantly worse on the timed subtests of the Wechsler Adult Intelligence Scale (WAIS) as compared with the untimed subtests, whereas performance on the two types of tests among low anxiety participants did not differ. In addition, in a test of experimenter- versus self-pacing, Mayer (1977) found that participants low in trait anxiety performed similarly in both conditions, while those high in trait anxiety performed significantly better when allowed to self-pace.

While no published studies in the neuropsychological literature have examined the contribution of anxiety to social facilitation or third party observer phenomena, a number of studies have looked directly at the influence of anxiety on neuropsychological test performance. For example, Buckelew and Hannay (1986) found that while performance on a variety of neuropsychological tests was not affected by trait anxiety, those participants high in state anxiety performed more poorly on a simple word fluency test and the block design subtest from the WAIS as compared with participants low in state anxiety. These two tests were rated as being significantly more difficult than the other tests administered, including the Digit Symbol subtest from the WAIS and the FTT, suggesting that high levels of state anxiety may be associated with poorer performance on difficult but not necessarily easy tests.

In another study investigating anxiety and neuropsychological test performance, King, Hannay, Masek, and Burns (1978) found that for women only, higher trait anxiety as assessed with the State–Trait Anxiety Inventory (STAI) was associated with poorer performance on both the FTT and the dominant hand and both hand subtests of the form board, a precursor to the Tactual Performance Test (TPT). Additionally, in an investigation of the effects of various personality traits on performance on 13 neuropsychological tests among 57 subjects with toxic encephalopathy and 57 healthy

referents, Persson, Österberg, Karlson, and Ørbæk (2000) found that within the healthy group, high trait anxiety was associated with worse performance on measures of visual reaction time, visual search, and response inhibition. When collapsed across subject groups, high trait anxiety was also associated with poorer performance on the Digit Symbol subtest of the WAIS-R. Trait anxiety was not associated with performance on measures of verbal fluency, general knowledge, spatial ability, or verbal memory. Interestingly, while healthy subjects low in trait anxiety demonstrated better performance than the toxic encephalopathy subjects on 8 of the 13 tasks, those healthy subjects high in trait anxiety exhibited superior performance only on a test of verbal memory. These results suggest that trait anxiety may have a clinically as well as statistically significant impairing effect on performance on certain neuropsychological tasks.

As previously discussed, many social facilitation studies have suggested that performance on neuropsychological tests may be impaired in the presence of many types of third party observers across a number of different domains. However, there has been limited research specifically examining the effects of a third party observer on performance on non-computerized tests of executive function. The accurate assessment of executive functioning capabilities is important in neuropsychological testing, especially given associations found between executive functioning and quality of life in some populations (e.g., Alptekin et al., 2005; Fujii, Wylie, & Nathan, 2004). Therefore, one goal of the present study was to investigate the effect of a neutral observer on performance of neuropsychological tests of executive functioning, including phonemic (letter) and semantic (category) verbal fluency tests, the TMT, and the TPT. Given previous research demonstrating adverse effects of observer presence on performance of complex or novel tasks, it was hypothesized that the presence of a third party observer would be associated with impaired performance on tests of executive functioning. More specifically, it was predicted that impairment due to observer presence would be considerable on the verbal fluency tests, in accordance with those findings of Kehrer et al. (2000) on the COWAT and of Buckelew and Hannay (1986) on the simple word fluency test. Performance differences on the TMT between observation groups, however, were predicted to be small or nonexistent, given null findings of both Kehrer et al. (2000) and Lynch (2005) on this test. Given the complexity of and need for cognitive flexibility required on the TPT, it was predicted that impairments on this test in the presence of an observer would be large.

Although previous research has suggested that anxiety may impair performance on various neuropsychological tests, interactions between anxiety and presence of a third party observer on neuropsychological tasks have not been investigated. Given previous research suggesting poorer performance of anxious individuals on complex non-motor tasks, it was hypothesized that there would be a main effect of anxiety on performance of tests of executive functioning such that high anxiety would be associated with poorer performance. However, given the simple nature of the TMT—part A, combined with findings that high anxiety is associated with greater speed (e.g., Leon & Revelle, 1985), it was predicted that performance on this test would be better among high anxiety individuals as compared with individuals low in anxiety. In addition, a significant observation condition by anxiety interaction was predicted such that the presence of a third party observer would be associated with greater decrements in performance for high state and trait anxiety individuals as compared with low anxiety subjects.

1. Methods

1.1. Participants

After gaining approval of the human subjects institutional review board, 79 college undergraduates were recruited from introductory psychology classes. Informed consent was obtained and subjects of each gender were randomly assigned to either the experimental or the control group, to ensure roughly equivalent ratios of males to females in each group. The experimental group was observed by a third party observer, while the control group was not observed during test administration. Data from five subjects in the experimental condition and four subjects in the control condition were discarded for the following reasons: two participants exhibited cheating behaviors on one of the tests, two withdrew before completing all tests, and two were under the obvious influence of intoxicating substances. Additionally, two cases were discarded due to missing data and one due to experimenter error. Thus, 70 subjects were included in the final analysis, 35 in each group.

Participants included 44 males and 26 females (comprising 63 and 37% of the sample, respectively), ranging in age from 18 to 38 ($M = 19.56$, S.D. = 3.08). There were no statistically significant differences between groups in terms of age or gender.

1.2. Measures

Each participant was administered five tests in the following order: (1) Fear of Negative Evaluation scale (FNE), (2) phonemic (letters F, A, and S) and semantic (animal naming) verbal fluency tests, (3) Trail Making Test (TMT), parts A and B (4) Tactual Performance Test (TPT), and (5) State–Trait Anxiety Inventory (STAI).

1.3. Procedures

The FNE, verbal fluency tests, TMT, TPT, and STAI were administered according to standard procedures (Benton, Hamsher, & Sivan, 1994; Reitan & Wolfson, 1993; Spielberger, 1983; Watson & Friend, 1969). The same examiner, who was blind to the hypotheses of the study, administered all tests while the same third party observer was present during testing for the experimental group. Both the examiner and observer were female.

In the experimental group, participants were informed that an observer would be in the room, although the reason for the observer's presence was not divulged to either participants or the examiner. The observer sat approximately 1 m behind and to the left of the subject, facing the examiner. Although the observer took occasional notes during testing, she did not interrupt or directly interfere with the testing process, and took efforts to remain as unobtrusive as possible. The duration of the testing session for both groups was approximately 45 min.

1.4. Analyses

A $2 \times 2 \times 2$ between-subjects multivariate analysis of variance (MANOVA) was performed to determine whether three independent variables (IVs: observation condition, state anxiety, and trait anxiety) were related to performance on tests of executive functioning, as measured by nine dependent variables (DVs): fluency-FAS, fluency-animals, TPT-localization, TPT-memory, TPT-dominant hand, TPT-nondominant hand, TPT-both hands, TMTB-time, and TMTA-time. Given the goal of investigating associations among performance, observation, and anxiety and not of evaluation apprehension per se, as well as in the interest of maintaining adequate power, FNE scores were omitted from the final analyses. This decision was reinforced by recent findings suggesting that the scale may lack sensitivity at higher levels of fear of negative evaluation (Rodebaugh et al., 2004). TPT-total time scores were also excluded so as to avoid singular correlations with other TPT time scores. Additionally, error scores on both parts of the TMT were excluded from the final analyses given likely ceiling effects revealed upon initial inspection and in the interest of preserving adequate power.

Median splits were performed on the state and trait anxiety inventory scores to divide subjects into high and low state (Mdn = 37.0) and trait (Mdn = 38.0) anxiety groups. The median state anxiety score for this sample was 0.5 points lower and the median trait anxiety score 3.0 points higher than those of the sample of 102 undergraduates used in Leon and Revelle (1985). Additionally, mean trait anxiety scores for the low and high trait anxiety groups were within a standard deviation of those reported for low and high trait anxiety, respectively, in Buckelew and Hannay (1986). These similarities suggest that the median split used resulted in an appropriate and normative classification of subjects into low and high anxiety groups.

2. Results

Table 1 lists the multivariate F values for the combined DVs for each of the IVs, as well as for the condition by state anxiety and condition by trait anxiety interactions. Additionally, univariate F values are listed for those individual DVs considered likely to reach significance in a univariate context. Roy–Bargmann stepdown F's are also listed for the individual DVs, as the use of these may be warranted in order to reduce the effects of shared variance given the presence of correlations greater than .30 (in a positive or negative direction) between DVs. However, given the lack of adequate previous research on associations of observation and anxiety with these particular DVs and the consequent difficulty in predicting which variables are likely to be most influenced by the IVs, both univariate and stepdown F's were examined. DVs were entered into the analysis in the above-listed order. Table 1 also lists eta squared (η^2) values as indications of effect sizes for all multivariate main effects and interactions as well as for each statistically significant univariate comparison. Table 2 lists η^2 values for all univariate comparisons regardless of statistical significance. In accordance with convention, cutoffs of

Table 1
Tests of main effects and interactions of observation condition, state anxiety, and trait anxiety

IV	DV	η^2	Wilks' value (F)	Univariate F	Stepdown F
Observation condition		.28†††	.722 (2.31), $p = .03$*		
	Fluency-animals	.12††		8.10[a]	7.69
State anxiety		.22†††	.777 (1.72), $p = .11$		
Trait anxiety		.23†††	.771 (1.78), $p = .09$		
	TPT-localization	.16†††		11.79[b]	10.15*
Condition by state anxiety		.21†††	.792 (1.58), $p = .15$		
Condition by trait anxiety		.27†††	.735 (2.16), $p = .04$*		
	Fluency-animals	.13††		9.48[a]	7.64

*Significant at the $p \leq .05$ level, †small effect size, ††medium effect size, †††large effect size.
[a] Significance level cannot be evaluated but would reach $p < .05$ in univariate context.
[b] Significance level cannot be evaluated but would reach $p < .01$ in univariate context.

.01, .06, and .14 are used as indicators of small, medium, and large effects, respectively (Haase, Ellis, & Ladany, 1989).

Using the Wilks' criterion to evaluate the main effects of each of the three IVs, the combined DVs were found to be significantly affected by observation condition, with approximately 28% of the variance in performance accounted for by condition. Examination of univariate F's reveals that performance on the fluency-animals test appeared to be significant at the $p \leq .05$ level, with the application of a Bonferroni correction for a final p value of .006. The stepdown F approaches significance, suggesting that some of the variance shared with observation condition may be accounted for through overlapping variance with other DVs. However, these results still suggest that performance on the fluency-animals test was particularly influenced by the presence of a third party observer. Inspection of means and standard deviations (see Table 3) reveals that performance on this test was poorer in the observation condition as compared with the control condition.

Main effects of state anxiety and trait anxiety were not found to be significant. However, informal inspection of univariate and stepdown F's for each DV reveals that performance on the TPT-localization subtest appeared to be significantly related to trait anxiety. Examination of group means for this subtest reveals superior performance for the high anxiety group ($M = 5.34$, S.D. = 2.13) as compared with the low anxiety group ($M = 3.91$, S.D. = 1.99). Inspection of η^2 values reveals that effect sizes for all multivariate main effects and for the effect of trait anxiety on TPT-localization score are large. A medium effect size was found for the association of observation condition with the fluency-animals test (see Table 1).

The Wilks' criterion was also used to investigate separate interactions between observation condition and state and trait anxiety. Although the interaction between condition and state anxiety was not significant, performance on the combined DVs was found to be significantly affected by the interaction between observation condition and trait anxiety, with 27% of the variance in performance accounted for by the interaction. Examination of univariate F's reveals that

Table 2
Effect sizes (η^2) for univariate comparisons within each multivariate comparison

	Observation condition	State anxiety	Trait anxiety	Condition by state anxiety	Condition by trait anxiety
Fluency-FAS	.01†	.01†	.0†	.05†	.03†
Fluency-animals	.12††	.08††	.04†	.11††	.13††
TMTA-time	.00	.08††	.06††	.02†	.02†
TMTB-time	.00	.07††	.03†	.03†	.00
TPT-dominant	.00	.07††	.02†	.00	.00
TPT-nondominant	.00	.01†	.02†	.00	.01†
TPT-both	.00	.05†	.04†	.00	.01†
TPT-memory	.00	.00	.07††	.02†	.02†
TPT-localization	.08††	.02†	.16†††	.00	.03†

†small effect size, ††medium effect size, †††large effect size.

Table 3
Group means and standard deviations for observation and trait anxiety (TA) groups

	Control			Observed		
	Low TA	High TA	Total	Low TA	High TA	Total
Fluency-FAS: total words	37.21 (10.26)	40.00 (14.63)	38.49 (12.33)	36.56 (8.27)	36.32 (8.25)	36.43 (8.14)
Fluency-animals: total words	19.37 (5.36)	22.25 (6.98)	20.69 (6.23)	18.88 (3.54)	17.21 (3.63)	17.97 (3.63)
TMTA: time (s)	28.41 (11.74)	25.06 (4.14)	26.88 (9.13)	27.15 (7.87)	26.06 (4.80)	26.56 (6.31)
TMTA: errors[a]	.21 (.42)	.25 (.58)	.23 (.49)	.13 (.34)	.26 (.45)	.20 (.41)
TMTB: time (s)	55.03 (17.32)	54.66 (15.74)	54.86 (16.38)	56.39 (22.74)	52.11 (10.91)	54.07 (17.20)
TMTB: errors[a]	.37 (.60)	.31 (.60)	.34 (.59)	.19 (.40)	.05 (.23)	.11 (.32)
TPT-dominant: time (min)	5.78 (2.87)	5.44 (2.16)	5.63 (2.54)	5.83 (3.11)	5.83 (2.34)	5.83 (2.67)
TPT-nondominant: time (min)	3.87 (1.43)	4.29 (3.53)	4.06 (2.58)	4.86 (3.44)	3.53 (1.59)	4.13 (2.65)
TPT-both: time (min)	2.07 (1.08)	2.01 (.97)	2.04 (1.02)	2.22 (1.06)	1.78 (.88)	1.98 (.98)
TPT-total: time (min)[a]	11.72 (4.69)	11.74 (6.17)	11.73 (5.33)	12.91 (6.66)	11.14 (4.29)	11.95 (5.48)
TPT-memory: total shapes	7.53 (1.22)	8.00 (1.21)	7.74 (1.22)	7.06 (1.81)	8.00 (1.00)	7.57 (1.48)
TPT-localization: total shapes	4.79 (1.81)	5.44 (2.22)	5.09 (2.01)	2.88 (1.71)	5.26 (2.10)	4.17 (2.26)

[a] Variable not included in final analyses.

performance on the fluency-animals test appeared to be significantly associated with the observation condition by trait anxiety interaction. The stepdown F approaches significance, again suggesting that some of the variance shared with the condition by trait anxiety interaction may be accounted for through overlapping variance with other DVs. Further examination of the interaction suggests that the presence of a third party observer is associated with greater impairment on performance of the fluency-animals test among individuals high in trait anxiety as compared with those low in trait anxiety (see Fig. 1). Inspection of η^2 values reveals that effect sizes for both multivariate interactions are large. Additionally, a medium effect size of the condition by trait anxiety interaction on the fluency-animals test was found (see Table 1). Table 3 lists group means and standard deviations on each DV for low and high trait anxious groups within both observation conditions.

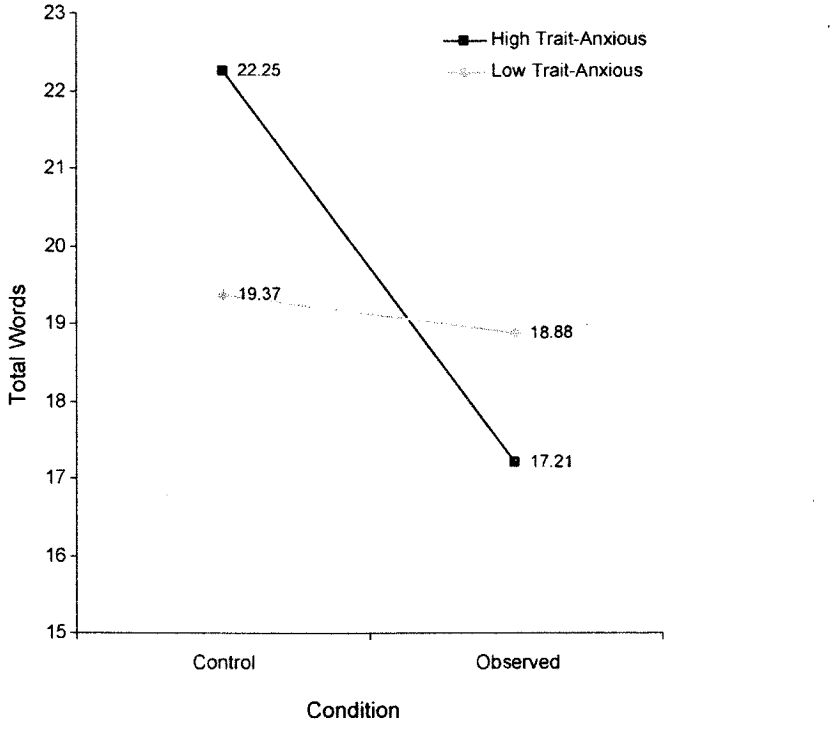

Fig. 1. Observation condition by trait anxiety interaction on fluency-animals test.

3. Discussion

The findings from this study suggest that the presence of a third party observer is associated with poorer performance on certain tests of executive functioning, thereby adding to the existing neuropsychological literature on the negative effects of third party observation on test performance. Performance on the fluency-animals test seems to be particularly impaired by observer presence, although the mean score for the observed group was within a standard deviation of that for age- and education-matched norms ($M = 19.8$, S.D. = 4.2; Tombaugh, Kozak, & Rees, 1999).

Results from this study also imply that performance on tests of executive functioning may be influenced by trait anxiety. Although the multivariate analysis was not significant, univariate analysis suggested that low trait anxiety may be associated with worse performance on the TPT-localization subtest. Inspection of norms for TPT performance reveals that subjects classified in the present study as low in trait anxiety performed more than a standard deviation below that of age- and education-appropriate norms ($M = 6.47$, S.D. = 2.44; Yeudall, Reddon, Gill, & Stefanyk, 1987). This finding is somewhat surprising given the difficult nature of the task and the more common finding that high anxiety is associated with worse performance on complex or novel tasks. However, this analysis did not account for third party observer effects.

Another aim of the present study was to examine interactions among observation condition and state and trait anxiety. Although there were no significant findings associated with state anxiety, the multivariate observation condition by trait anxiety interaction was found to be significant, suggesting that the presence of a third party observer differentially affects performance among individuals high and low in trait anxiety. Results additionally suggested that this disparity is particularly pronounced for performance on the fluency-animals test. Although group means for high and low trait anxiety subjects in the control and observed conditions were all within a standard deviation of age- and education-appropriate norms (Tombaugh et al., 1999), high anxiety subjects in the control condition performed over a half-standard deviation above the normed mean while those in the observed condition performed over a half-standard deviation below this mean. In contrast, low anxiety subjects performed within a quarter-standard deviation below the normed mean in both observation conditions. These results suggest that while high trait anxiety may have a facilitating effect on semantic fluency in less stressful situations, individuals high in trait anxiety may be especially vulnerable to the potential negative impact of an added stressor such as a third party observer.

Interestingly, investigation of group means on the localization subtest of the TPT, performance on which was also shown to be influenced by trait anxiety, reveals an opposite pattern. While performance among subjects high in trait anxiety was within a half-standard deviation below an age- and education-appropriate normed mean (Yeudall et al., 1987) in each condition, performance among subjects low in trait anxiety differed to a greater degree between observation groups. Whereas the mean performance of low trait anxiety subjects in the control condition was within a standard deviation of the normed mean, performance in the observed condition was more than a standard deviation below the appropriate normed mean. Additionally, in examining how these scores would be interpreted in computing the general neuropsychological deficit scale (NDS) score of the Halstead-Reitan Neuropsychological Test Battery (Reitan & Wolfson, 1993), individuals scoring within a standard deviation of the low anxiety control group mean on the TPT-localization subtest would be considered to be performing either within normal limits (NDS = 0 or 1) or in the mild-to-moderate deficit range (NDS = 2). Those individuals performing within a standard deviation of the low anxiety observed group mean on this test, however, would be considered to be performing either in the mild-to-moderate (NDS = 2) or severe (NDS = 3) deficit range. Thus, although the univariate test for the observation condition by trait anxiety interaction on the TPT-localization subtest was not statistically significant, examination of appropriate norms and scoring conventions suggests a clinically significant interaction such that individuals low in trait anxiety may be more susceptible to the possible adverse impact of observer presence on performance of certain tests such as those assessing recall for spatial location.

Examination of performance patterns among subjects in each observation condition is warranted in order to elucidate potential mechanisms surrounding social facilitation and anxiety effects on tests of executive functioning. As hypothesized, performance on a verbal fluency test and on a subtest of the TPT were associated with significant third party observer or observer by anxiety effects. Additionally, in accordance with findings of Kehrer et al. (2000) and Lynch (2005), performance on the TMT did not differ between observation groups. Scores on the TMT were also similar among high and low anxiety subjects. With respect to the nature of the associations among anxiety, observation, and performance, these may have varied in part due to the different nature of the tests used in the present study. For example, high trait anxiety was associated with a greater negative impact of observer presence on performance of the

fluency-animals test, as compared with low trait anxiety. However, this relationship was not found for the localization subtest of the TPT. Given the oral nature of responding on the fluency-animals test, it is possible that evaluation apprehension and overall arousal rose to an impairing level among individuals already prone to anxiety when an observer was present. Additionally, spontaneous cognitive flexibility may be particularly vulnerable to the potentially anxiety-inducing and impairing effects of a third party observer. The timed nature of the fluency-animals test likely serves as an additional source of anxiety or arousal; as discussed previously, in comparison with untimed tasks, timed tests have been associated with worse performance among anxious individuals (Siegman, 1956). On the TPT-localization subtest, however, responses cannot be readily observed by an individual sitting 1 m behind the examinee. Furthermore, this test is not timed.

While the present study provides further support for the association between observer presence and poorer neuropsychological test performance, in addition to shedding light on interactions of observation with examinee anxiety, certain limitations of the study should be noted. First, self-rating scales were used to determine subjects' levels of anxiety, and given that self-report scales are often prone to social desirability response sets, confounds may have been present in examining interactions between anxiety and social facilitation effects. An additional limitation of this study is that all subjects were college undergraduates; this homogeneity among participants limits the generalizability of the findings of this study. Future research on the effects of observer presence and anxiety on neuropsychological test performance in other populations is warranted.

Despite these limitations, the present study contributes to the existing literature suggesting that the validity of neuropsychological test results obtained while a third party observer is present is significantly compromised. Furthermore, these findings have added to the previous research by suggesting that impairments in performance that result from the presence of a third party observer occur not only in tests of effort, attention, concentration, learning, and memory, but in tests of executive functioning as well. The statistically significant finding that performance on tests of verbal fluency may be negatively impacted by the presence of a third party observer replicated that of Kehrer et al. (2000). Additionally, this study is the first known to demonstrate an effect of observer presence on performance of a subtest of the TPT. The medium and large effect sizes found suggest that these associations between test performance and observer presence are clinically as well as statistically significant. Findings from the present study also provide evidence that examinee trait anxiety interacts with third party observation to yield different performance patterns among individuals high and low in anxiety.

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Exhibit G

Effects of a Third Party Observer on Neuropsychological Test Performance Following Closed Head Injury

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Effect of a Third Party Observer on Neuropsychological Test Performance Following Closed Head Injury

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ABSTRACT. The effect of a third party observer on neuropsychological test performance was examined within the framework of social facilitation. Social facilitation refers to the influence of an observer's presence on human behavior. Previous studies of social facilitation have demonstrated that an observer improves performance on easy or well-learned tasks and diminishes performance on complex or novel tasks. To examine social facilitation effects on neuropsychological testing, the Trail Making Test, Verbal Paired Associates subtest from the Wechsler Memory Scale-Revised (WMS-R), Finger Tapping Test, Grip Strength, and the Grooved Pegboard were administered to 60 individuals with a self-reported history of mild to severe closed head injury. Half of the participants received a standard test administration, and the other half were tested in the presence of a third party observer. A statistically significant difference between groups was found on the Verbal Paired Associates delayed recall from the WMS-R with the observed group recalling fewer word pairs than the unobserved group. *[Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <http://www.HaworthPress.com>*

KEYWORDS. Forensic, third party observer, social facilitation, standardized test administration

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This brief report describes research that was conducted in 1995. At that time, Binder and Johnson-Greene (1995) had published the first article that described the negative impact of an observer on neuropsychological testing. Their article presented the case study of a young female adult with medically intractable seizures who showed a significant decline in her accuracy rate on the Portland Digit Recognition Test when her mother was present for part of the administration. In explaining the findings, Binder and Johnson-Greene suggested that the patient's dependent personality traits interacted with the presence of her mother to influence test performance. Essentially, the patient may have been motivated to perform poorly in her mother's presence in order to create an image of a person in need of support. They further suggested that neuropsychological test performance could be affected by numerous person-situation factors that are introduced by the presence of another party in the testing room.

The phenomenon of task performance being influenced by the presence of another person has been extensively studied in the field of social psychology and is referred to as *social facilitation.* This area of study has generally found that the presence of an observer facilitates performance on easy or well-learned tasks but inhibits performance on difficult or novel tasks. Social facilitation has been discussed in more detail in an earlier article in this issue (McCaffrey, Lynch, & Yantz).

The present study was designed to assess the effects of an observer on the neuropsychological test performance of individuals with a history of closed head injury. The selection of neuropsychological instruments was guided by the social facilitation literature as well as the popularity of various neuropsychological tests (Butler, Retzlaff, & Vanderploeg, 1991). Only three instruments were chosen in an effort to maintain adequate statistical power given the practical constraints of recruiting head-injured subjects for participation in this university-based research project. Since the request for third party observation arises more frequently in forensic settings, an attempt was made to approximate this situation by depicting the observer as someone assuming the role of a legal representative.

METHOD

Participants

Sixty individuals who had sustained a closed head injury were recruited for participation in a university-based research investigation

from support groups sponsored by the Brain Injury Association. Participants ranged in age from 17 to 68 years ($M = 33.3$, $SD = 11.9$). Their education levels ranged from 10 to 22 years ($M = 15.1$, $SD = 2.8$). Time post-injury ranged from 2 months to 58 years ($M = 126$ months, $SD = 137.7$ months). The participants' reported duration of loss of consciousness was used as a gross indicator of injury severity with mild injury classified as loss of consciousness for no longer than 30 minutes, moderate injury classified as loss of consciousness between 30 minutes and 6 hours, and severe injury classified as loss of consciousness greater than 6 hours. Forty-six percent (n = 27) of the sample was classified as having sustained a mild head injury, 6 percent (n = 4) as having sustained a moderate head injury, and 48 percent (n = 29) were classified as having sustained a severe head injury.

Tables 1, 2, and 3 summarize characteristics of the subjects by group. The groups did not differ significantly in age, years of education, time since injury, or gender composition. The number of participants within each injury severity level was similar in each group [$\chi^2(2) = 1.07$, $p = .59$] . Information regarding current litigation and prior experience with neuropsychological testing was also reported by each participant. Groups did not differ significantly in terms of the number of participants currently involved in litigation associated with the closed head injury [$\chi^2(1) = 3.27$, $p = .07$] or previous exposure to the neuropsychological instruments used in the study.

Material

All participants were administered the Verbal Paired Associates subtest from the Wechsler Memory Scale-Revised (WMS-R; Wechsler, 1987), Trail Making Test (Reitan & Wolfson, 1993), and Finger Tapping Test (Reitan & Wolfson, 1993). Verbal Paired Associates requires

TABLE 1. Demographic Characteristics of the Groups

	Unobserved			Observed				
Variable	*M*	*(SD)*	Range	*M*	*(SD)*	Range	*t*	*p*
Age (years)	34.5	(13.5)	18-69	32.2	(10.2)	17-54	.75	.46
Education (years)	15.1	(2.4)	11-21	15.1	(3.1)	10-22	.02	.98
Time since injury (months)	114.9	(157.6)	2-696	137.1	(116.2)	4-388	−.62	.53

Note:. $n = 16$ males and 14 females in the unobserved group; n = 21 males and 9 females in the observed group [$\chi^2(1) = 1.76$, $p = .18$]

TABLE 2. Severity Classification of Closed Head Injuries by Group

Classification	Unobserved	Observed
Mild (≤ 30 ms)	43%	47%
Moderate (> 30 mins, ≤ 6 hrs)	10%	3%
Severe (> 6 hrs)	47%	50%

TABLE 3. Previous Exposure to Neuropsychological Measures

	Unobserved		Observed			
Variable	*n*	%	*n*	%	χ^2	*p*
Trail Making Test	13	43.3	12	40.0	.07	.79
Finger Tapping Test	10	33.3	7	23.3	.74	.39
Paired Associates	4	13.3	5	16.7	.13	.72
Grip Strength	13	43.3	9	30.0	1.15	.28
Grooved Pegboard	15	50.0	14	46.7	.07	.80

a 30-minute interval between the immediate and delay recall trials. The administration of the other neuropsychological measures required less than 30 minutes. Therefore, two motor measures, Grip Strength (Reitan & Wolfson, 1993) and Grooved Pegboard (Trites, 1989), were added as "time filler" tasks, but these measures were not included in the primary statistical analyses in order to limit the number of pair-wise comparisons and inflation of Type I error rate.

Each neuropsychological instrument was administered and scored according to standard instruction. The procedures outlined in the Halstead-Reitan Neuropsychological Test Battery manual (Reitan & Wolfson, 1993) were followed in administering and scoring the Finger Tapping Test, Grip Strength, and Trail Making Test. Verbal Paired Associates was administered and scored according to the instructions in the WMS-R test manual (Wechsler, 1987). The Grooved Pegboard was administered and scored according to instructions provided by the Lafayette Instrument Company.

Procedure

Participants were randomly assigned to one of two groups. The unobserved group received a standard test administration. The observed group was administered the neuropsychological tests in the presence of an observer. A male graduate student assumed the role of the observer. Prior to

test administration, the observer was introduced as a colleague who was assuming the role that a legal representative would assume in cases in which legal parties wanted to be present for testing. (It was initially planned to introduce the observer as a legal representative, but this was revised at the recommendation of the university's institutional review board.) The observer was professionally groomed. He was seated at one side of the testing table, perpendicular to the examiner and examinee who were seated at opposite ends of the table. The observer held a pen and legal pad, and was instructed to hold the pen near the note pad positioned to take notes while silently and attentively watching the testing.

Each participant was administered the tests in the following order: Verbal Paired Associated Immediate Recall, Trail Making Test, Grooved Pegboard, Grip Strength, Finger Tapping Test, and Verbal Paired Associates Delayed Recall. After testing, each subject was paid five dollars for participation.

The same graduate student, trained in administration of the neuropsychological measures, conducted the testing of all participants. Similarly, the same observer was present for all the test administrations of the observed group. Both the examiner and the observer were blind to the hypotheses of the study.

Analysis

Independent samples *t*-tests were used to evaluate group differences on the six dependent variables. Raw scores were used in the analyses. The *a priori* alpha level was set at .01 to determine statistical significance for these analyses. Given previous findings from the social facilitation literature of a medium effect size, an alpha level of .01, and 30 subjects in each group, the experimental design had a power of .60 (Cohen, 1988).

Several of the score distributions were transformed due to the presence of extreme outliers and skewed distributions. A logarithmic transformation was applied to the distributions from Parts A and B of the Trail Making Test and a square root transformation was applied to the score distribution from the dominant hand trial of the Finger Tapping Test (Tabachnick & Fidell, 1989).

RESULTS

Means and standard deviations of the neuropsychological tests scores for each group are presented in Table 4. Results from the one-tailed in-

TABLE 4. Primary Analyses of Third Party Observer Effects on Neuropsychology

	Unobserved		Observed				
	Mean	*(SD)*	Mean	*(SD)*	*t*	*p*	*d*
Trail Making Test							
Part A	30.95	(15.1)	36.17	(24.2)	.47	.32	.27
Part B	65.51	(31.8)	73.01	(58.3)	.01	.49	.16
Finger Tapping Test							
Dominant Hand	45.51	(12.2)	47.85	(12.8)	.28	.38	.19
Nondominant Hand	42.98	(9.9)	45.84	(11.8)	1.01	.16	.27
Wechsler Memory Scale-Revised							
Verbal Paired Associates							
Immediate Recall	17.47	(3.8)	16.57	(5.8)	.71	.24	.18
Delayed Recall	7.37	(.81)	6.43	(1.9)	2.41	.01*	.63

Note: The means of the transformed score distributions were used in the statistical analyses for Trail Making Test and Finger Tapping Test-dominant hand trial. *d* = Cohen's *d* effect size estimate.
* $p \leq .01$.

dependent samples *t*-tests indicated a significant group difference on the delayed recall trial from Verbal Paired Associates with the observed group performing significantly worse than the unobserved group. No statistically significant group differences were found on the Trail Making Test Part A or Part B, the Finger Tapping Test dominant hand or nondominant hand trials, or Verbal Paired Associates immediate recall.

Supplemental analyses were completed on scores from the Grooved Pegboard and Grip Strength. In addition, the recall of the easy and hard word pairs from Verbal Paired Associates were analyzed separately for both immediate and delay recall trials. A final analysis examined the number of learning trials administered to subjects on the Verbal Paired Associates test. The Bonferroni correction (Hays, 1988) resulted in an adjusted alpha level of .006 for these nine comparisons. Due to presence of extreme outliers, a rank order transformation (Conover, 1980) was applied to the score distributions from the Grooved Pegboard task. No statistically significant differences between the groups were found for any of these analyses (see Table 5).

Effect sizes were calculated using Cohen's *d*, which expresses the magnitude of the effect on the dependent variable in terms of standard deviation units. Cohen's *d* estimates of .20, .50, and .80 are typically defined as small, medium, and large, respectively (Cohen, 1992). A me-

TABLE 5. Supplementary Analyses of Third Party Observer Effects on Neuropsychological Testing

	Unobserved		Observed				
	Mean	*(SD)*	Mean	*(SD)*	*t*	*p*	*d*
Grooved Pegboard Test							
Dominant	86.01	(44.0)	83.37	(48.8)	.00	1.0	.06
Nondominant	86.18	(31.4)	85.32	(23.5)	.12	.74	.03
Grip Strength							
Dominant	35.74	(11.1)	40.13	(8.7)	1.70	.11	.44
Nondominant	33.57	(9.4)	39.15	(9.9)	2.22	.04	.58
Wechsler Memory Scale-Revised							
Verbal Paired Associates							
Immediate Recall							
Easy Pairs							
Difficult Pairs	6.40	(3.1)	6.30	(3.5)	.12	.45	.03
Delayed Recall							
Easy Pairs							
Difficult Pairs							
# Trials Administered	4.03	(1.3)	4.67	(1.7)	1.59	.05	.43

Note: The means of transformed score distributions were used in the statistical analyses for the Grooved Pegboard; *d* = Cohen's *d* effect size estimate.

dium effect size estimate was obtained for delayed recall from Verbal Paired Associates (.63). Effect sizes were calculated for the remaining neuropsychological measures for which there were no statistically significant group differences. Small effect size estimates were found for the majority of these neuropsychological measures with the exception of Grip Strength. On Grip Strength, a small to medium effect size estimate was obtained for the dominant hand trial (.45) and a medium size estimate for the nondominant hand trial (.58). The observed group tended to perform better on Grip Strength than the non-observed group.

DISCUSSION

The purpose of this investigation was to examine social facilitation effects on the neuropsychological test performance of a sample of individuals with a history of closed head injury. A statistically significant difference was found between the observed and unobserved groups on

the Verbal Paired Associates subtest from the WMS-R. On average, participants tested in the presence of a passive observer recalled fewer words than those participants tested under standardized conditions on the 30-minute delayed recall of the paired associates. While groups did not statistically differ in performance on Grip Strength, a medium effect size was found for the nondominant hand trial. On this measure, the observed group tended to perform better than the non-observed group. Failure to detect a statistically significant finding might have been due to the low power of the experimental design (*a priori* power = .60).

A comment is warranted about analogue research. Although future research may be designed to more closely approximate the forensic setting than was done in this study, it may not be possible to capture the important aspects of these evaluations. In the situation where a third party observer is present for the testing in the context of on-going litigation, the salience of the observer and the examinee's level of evaluation apprehension during an evaluation are difficult to re-create in a research setting. Yet, these may be relevant to the impact that the observer could have on the test. Some social facilitation theorists have identified the status of the observer as an important variable in determining the strength of the social facilitation effect (Seta, Crisson, Seta, & Wang, 1989; Seta, Wang, Crisson, & Seta, 1989). A high status observer is someone perceived by the individual as evaluating his/her behavior or performance. Seta and colleagues (1989) have found that the higher the status of the observer, the greater the impact of the observer on the task performance. In an actual forensic evaluation in which a high status observer is present, the observer effect could be enhanced. Thus, any social facilitation effects on neuropsychological test performance that is documented in a "benign" research setting may underestimate that which occurs in a real-life legal setting.

In conclusion, the findings from this study conducted in 1995 suggest that the presence of a third party observer could result in an inaccurate assessment of verbal memory abilities. Research completed after this study has provided further evidence that verbal memory test performance is adversely impacted by the presence of a third party observer during test administration (Constantinou, Ashendorf, & McCaffrey, 2002; Constantinou, Ashendorf, & McCaffrey, 2005; Kehrer, Sanchez, Habif, Rosenbaum, & Townes, 2000; Yantz & McCaffrey, 2005, as is performance on some neuropsychological measures of attention and executive functioning (Huguet, Galvaing, Monteil, & Dumas, 1999; Kehrer et al., 2000).

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Exhibit H

Effects of a significant-other on neuropsychological test performance

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Effects of a Significant-Other Observer on Neuropsychological Test Performance*

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ABSTRACT

The present study examined the effects of a third-party observer on neuropsychological test performance in a sample of 30 university students seeking evaluation for learning disability. A significant-other (defined as a parent, sibling, close friend, spouse, or partner) observed portions of a neuropsychological testing session. Subjects were administered a battery of tests, including seven repeatable measures, chosen to assess diverse neuropsychological functions. In the presence of an observer, performance deficits were found on tests of attention, speed of information processing, and verbal fluency. An observer had no effect on tests of cognitive flexibility or motor speed. Our results suggest that the validity of test results may be compromised by the presence of an observer.

Under the rules of discovery in many state law jurisdictions, courts have held that individuals may have their legal representative present during neuropsychological and psychiatric examinations performed at the request of an opposing attorney. Although most jurisdictions have not gone as far as the State of Illinois in the decision to include a third-party observer during a "physical or mental examination" (Section 512.1003(d) of the Code of Civil Procedure [1982]), in jurisdictions that allow the presence of an observer (e.g., WAC 246–924–363 [1998]), exclusion of such by an examiner has been decided on a case-by-case basis by a judge, and the burden of argument against the observer being present falls to the examiner (e.g., Teitjen vs. Department of Labor and Industries, 13, Washington, App., 86, 534 P.2d 151 [1975]; Vinson vs. Superior Court, 43, CA.3d 833, 740, P.2d 404 [1987]). Neuropsychologists have protested the presence of an attorney or their representative during testing on the grounds of violation of professional ethics including maintaining the privacy of tests (American Psychological Association, 1992) and the administration of tests under non-standard conditions (American Psychological Association, 1985). Citing these standards, neuropsychologists have advised colleagues not to allow a third-party observer to be present during testing (McCaffrey et al., 1996; McSweeny et al., 1998).

Binder and Johnson-Greene (1995) described a patient who performed significantly worse on a measure of malingering when her mother was present as compared to when her mother was absent from the examination. Two major limitations of the Binder and Johnson-Greene study are as follows: (1) only one subject was assessed, which makes it impossible to determine whether the observed effect would hold for groups of subjects or would generalize to other diagnostic groups; and (2) the results of the study were based on performance given in response to a single test. The question remains

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whether performance on other neuropsychological measures under similar circumstances also would be impacted by an observer. The present study was designed to surmount these limitations by testing the following hypothesis: neuropsychological test performance would be significantly worse when a significant-other is present during testing than when a significant-other was absent, and that this effect would be demonstrated across a variety of neuropsychological measures.

To our knowledge, the present investigation represents the first systematic, empirical study of the impact of an observer on neuropsychological test performance with both an observer "absent" and observer "present" condition over a repeatable measures paradigm.

METHOD

Participants

Participants were 15 male and 15 female university students between 18 and 38 years of age (M = 25.27, SD = 6.15) who had completed an average of 14.6 (SD = 2.59) years of education. Twenty-five (83.3%) were Caucasian, 1 (3.3%) was African American, 3 (10%) were Filipino, and 1 (3.3%) was Native American. Twenty-five participants (83.3%) were single and 5 (16.7%) were married, separated, or divorced. All were referred for neuropsychological evaluation by the University of Washington's Office of Disabled Student Services. Testing was required to document the students' eligibility for special education accommodations. Students submitting applications for special services were given a flyer describing an opportunity to receive the required testing through the Neuropsychology Laboratory at Harborview Medical Center for a greatly reduced fee, in exchange for their participation in a research study on the effects of an observer on examiner–examinee interaction. Students participating in the research were required to have a significant-other accompany them and be present for portions of the testing. Significant-other participants included: 18 parents (60%, including 15 mothers and 3 fathers), 4 spouses or partners (13.3%), 1 sibling (3.3%), and 7 close friends (23.3%).

Measures

The assessment battery included 15 standard, published clinical instruments (Lezak, 1995), but only 7 of these were included as repeatable measures for the purposes of this research. Repeatable measures were chosen to assess the effects of an observing significant-other on a variety of neuropsychological domains, including motor speed (Finger Tapping), rapid verbal fluency (Controlled Oral Word Association Test [COWAT]), attention (Digit Span), sustained concentration (Stroop), learning and memory (Rey Auditory Verbal Learning Test [RAVLT]), cognitive flexibility (Trail Making Test-B [TMT-B]), and rapid information processing (Paced Auditory Serial Addition Task [PASAT]). To reduce practice effects, measures were chosen for which alternative versions were available (i.e., COWAT, Digit Span, RAVLT, TMT-B), or, as in the case of the PASAT (Stuss, Stethem & Poirier, 1987) and Stroop Color and Word Test (Sacks, Clark, Pols, & Geffen, 1991), minimal practice effects were expected.

Procedure

After approval of the Human Subjects Review Committee at the University of Washington and with the written consent of participants, testing was conducted by the first author at the Neuropsychology Testing Laboratory, Harborview Medical Center, Seattle, Washington, under the supervision of one of the co-authors (PNS). In the significant-other present condition, subjects were seated at a desk immediately across from the examiner with the significant-other seated slightly behind and out of the direct view of the subject. The significant-other was instructed to watch the testing activity, but not interact with the subject.

Repeatable measures were administered according to an ABAB design: significant-other absent/present/absent/present. To control for order effects, half of the subjects were tested in the reverse order (e.g., present/absent/present/absent). Scores in the two absent and two present conditions were averaged to obtain one absent and one present performance score for each repeatable measure for each subject.

Difference scores between the absent (unobserved) and present (observed) conditions also were calculated for each repeatable measure by subtracting average present condition scores from average absent condition scores for those measures on which higher scores were associated with better performance (COWAT, Digit Span, Finger Tapping, PASAT, RAVLT words recalled, Stroop). The signs were reversed for scores representing time to complete a task or number of errors produced (RAVLT perseverations and intrusions, TMT-B time and errors). Thus, higher scores represented better performance in the observer absent

condition, while lower scores represented interference in performance by an observer present during the examination.

Administration of repeatable measures was interwoven with tests included for evaluation of learning disability (Wechsler Adult Intelligence Scale-Revised [WAIS-R], Wechsler Memory Scale-Revised [WMS-R], Wide Range Achievement Test–3 [WRAT–3], Aphasia Screening Test, Category Test, Passage Comprehension, Tactual Performance Test [TPT]). Subjects were given a Minnesota Multiphasic Personality Inventory–2 (MMPI–2) (Hathaway & McKinley, 1943, 1989), which was completed at the end of the day after all testing had been administered. Testing sessions ran for approximately 6 hours.

RESULTS

To test the hypothesis that a subject's performance would be significantly worse when a significant-other was present during testing than when a significant-other was absent, a within-subjects MANOVA was performed (Table 1). A significant multivariate effect was found (Wilk's lambda = .305; F (13,15) = 2.63; p = .038). The multivariate effect size and observed power at a 0.05 alpha level were .695 and .82, respectively. Univariate statistics revealed that, when observed by a significant-other, subjects produced significantly more perseverations (i.e., repetitions of the same word) on a test of rote verbal learning (RAVLT), and performed significantly lower on tests of attention and concentration (Digit Span, Stroop), rapid information processing (PASAT), and verbal fluency (COWAT). There were no significant differences between the absent and present conditions on measures of cognitive flexibility (TMT-B), motor speed (Finger Tapping), or total words recalled or number of intrusions produced (i.e., words not on the original list) on a rote verbal learning task (RAVLT).

To evaluate which measures were most affected by the presence of an observing signifi-

Table 1. MANOVA Analysis and Test Performance Averages: Significant-Other Absent vs. Present Conditions.

	Sig. Other Absent		Sig. Other Present		Statistic	
	Mean	(*SD*)	Mean	(*SD*)	F (1,27)	p
Attention, Concentration						
Digit Span	14.82	(3.35)	13.90	(3.32)	6.22	.019
Stroop – Words	99.78	(14.47)	96.40	(14.15)	17.60	.000
Stroop – Colors	72.28	(9.83)	70.50	(9.39)	6.54	.016
Stroop – Color/Words	43.55	(8.78)	41.97	(11.43)	4.05	.054
Information Processing						
PASAT	41.86	(7.12)	40.09	(7.17)	11.07	.003
Verbal Fluency						
COWAT	45.88	(9.03)	42.67	(8.94)	15.92	.000
Learning and Memory						
RAVLT – Perseverations	2.45	(1.94)	3.28	(2.35)	5.53	.026
RAVLT – Recall	11.33	(2.15)	11.07	(2.55)	0.25	.623
RAVLT – Intrusions	1.41	(1.56)	1.31	(1.33)	0.05	.833
Cognitive Flexibility						
TMT-B – Time	57.32	(15.26)	58.83	(15.42)	0.05	.821
TMT-B – Errors	0.48	(.43)	0.40	(.44)	0.46	.503
Simple Motor						
Finger Tapping – Right	53.97	(5.77)	53.88	(6.24)	0.06	.813
Finger Tapping – Left	49.72	(6.09)	49.67	(7.04)	0.07	.788

Note. Wilk's lambda = .305; F (13,15) = 2.63; p = .038).
Multivariate effect size = .695; Observed power at 0.05 level = .82.
PASAT = Paced Auditory Serial Addition Task; COWAT = Controlled Oral Word Association Test; RAVLT = Rey Auditory Verbal Learning Test; TMT-B = Trail Making Test-B.

cant-other, effect size estimates were determined. Assuming conventional definitions of small, medium, and large effect sizes as .20, .50, and .80, respectively, it can be seen in Table 2 that medium-effect size estimates were obtained for the PASAT (.51), COWAT (.72), and Stroop word-reading trial (.68), whereas small to moderate estimates were obtained for RAVLT perseverations (.44), Digit Span (.44), Stroop color-naming (.40), and the Stroop color/word trial (.39).

Finally, analyses were performed to evaluate the effect of gender, parent versus non-parent relationship, and subject personality variables as measured by the 10 basic MMPI–2 clinical scales upon the subject's response to an observer. Given the large number of comparisons made, the few significant results were likely due to chance.

DISCUSSION

Results of this investigation support the hypothesis that subjects will experience a performance decrement when a significant-other is present during testing. This effect was observed on five out of seven neuropsychological instruments. Subjects performed significantly worse in the presence of an observer on tests of attention (Digit Span, Stroop Color and Word Test), speed of information processing (PASAT), and verbal fluency (COWAT), and were more persevering on a test of verbal learning and memory (RAVLT). The observer effect was uninfluenced by gender of the subject–observer pair, or by the type of relationship between the subject and the significant-other.

The lack of relationship observed between subject personality characteristics as measured by the MMPI–2 and the observer effect suggests that the observer effect is generalized and overrides specific personality correlates of the examinee. Similarly, the failure to find interactions with the type of subject–observer relationship suggests that the negative impact on neuropsychological test performance by the presence of an observer may not be restricted to close interpersonal relationships but may represent a generalized effect of an observer on neuropsychological test performance.

In summary, although psychologists have been urged to adhere to ethical standards of the profession and not allow third-party observers into the test situation unless necessary for training purposes or in other extraordinary circumstances (i.e., interpreter in a cross-cultural assessment) (McSweeny et al., 1998), many jurisdictions continue to allow a third-party observer in testing (e.g., WAC 246–924–363 [1998]). In the present investigation, a significant observer effect was found on tests of brief auditory attention, sustained attention, speed of information processing, and verbal fluency that appeared to be uninfluenced by the nature of the subject–observer relationship. Our results suggest that the validity of test results may be compromised by the presence of a significant-other observer. Although it remains to be seen in further study whether this holds true for nonsignificant-

Table 2. Effect Size Estimates and Observed Power for Measures Significantly Affected by the Presence of an Observing Significant-Other.

Measure	Effect Size	Power
RAVLT Perseverations	.44	.62
Digit Span	.44	.67
PASAT	.51	.89
COWAT	.72	.97
Stroop word-reading	.68	.98
Stroop color-naming	.40	.69
Stroop color/words	.39	.49

Note. RAVLT = Rey Auditory Verbal Learning Test; PASAT = Paced Auditory Serial Addition Task; COWAT = Controlled Oral Word Association Test.

other observers, the fact remains that issues of secondary gain, along with the introduction of an observer, may negatively impact on test performance. Our results suggest that exclusion of a third-party observer makes strong clinical, as well as ethical, sense. In addition, caution needs to be taken by the clinician when any observer is present (including trainees).

We recognize that the present study is not a direct test of the effect of an observer in a forensic situation. Nevertheless, in both cases, secondary gains could be anticipated. In the present study, poorer performance could lead to special educational accommodations with the long-term expectation of achieving academic and vocational goals. Thus, in both instances, the impact of an observer may be potentiated by potential rewards. To assure the validity of neuropsychological test results, as well as following current professional/ethical standards, the recommendation is that neuropsychologists, as a group, exclude observers during testing except for special circumstances, such as the need to have a parent present with a small child and/or for training purposes.

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Exhibit I:

Test Security: An Update. (2003). Official Statement of the National Academy of Neuropsychology

Approved by the NAN Board of Directors On October 13, 2003.

Test Security: An Update

Official Statement of the National Academy of Neuropsychology
Approved by the NAN Board of Directors 10/13/2003

Introduction

The National Academy of Neuropsychology's first official position statement on *Test Security* was approved on October 5, 1999 and published in the Archives of Clinical Neuropsychology in 2000 (Volume 15, Number 5, pp. 383-386). Although this position statement has apparently served its intended purposes, questions have arisen regarding the potential impact of the 2002 revision of the APA Ethics Code (APA Ethical Principles of Psychologists and Code of Conduct, 2002) on the original position statement, which was based upon the 1992 APA Ethical Principles of Psychologists and Code of Conduct. The 2002 revised APA Ethics Code seems to necessitate no basic changes in the principles and procedures contained in the original *Test Security* paper, and requires only some alterations and clarification in wording. Specifically, the 2002 revised APA Ethics Code distinguishes between test data and test materials. According to Code 9.04:

> Test data "refers to raw and scaled scores, client/patient responses to test questions or stimuli, and psychologists' notes and recordings concerning client/patient statements and behavior during the examination. Those portions of test materials that include client/patient responses are included in the definition of test data."

According to Code 9.11:

> Test materials "refers to manuals, instruments, protocols, and test questions or stimuli and does not include test data" (as defined above).

Psychologists are instructed to release test data pursuant to a client/patient release unless harm, misuse, or misrepresentation of the materials may result, while being mindful of laws regulating release of confidential materials. Absent client/patient release, test data are to be provided only as required by law or court order. In contrast, psychologists are instructed to make reasonable efforts to maintain the integrity and security of test materials and other assessment techniques consistent with such factors as law and contractual obligations.

The distinction between test data and test materials increases conceptual clarity, and thus this language has been incorporated into the updated *Test Security* position statement that follows. Beyond this change, we do not believe that the 2002 revision of the APA Ethics Code calls for additional changes in the guidelines contained in the original *Test Security*

paper. That is, if a request is made for test materials, the guidelines in the original position paper remain fully applicable. Further, despite the intended distinction between test materials and test data and the differing obligations attached to each, a request for test data still appears to necessitate the safeguards described in the original position statement in most circumstances in which neuropsychologists practice. The release pursuant to client/patient consent alone is still likely to conflict not only with the NAN original Test Security position statement, but also with one or both of 2002 revised APA Ethics Codes 9.04 and 9.11. This is because release of test responses without the associated test materials often has the potential to mislead (and is also often impractical given the manner in which test responses are often embedded in test materials). Further, in many cases, test data and test materials overlap, given the current state of many neuropsychological test forms, and thus to release the test data is to release the test materials. In other cases, test materials might easily be inferred from test data, and although release of the data might not technically violate the 2002 revised APA Ethics Code 9.11, it may well violate the intent of the guideline. Thus, even if requirements are met under 9.04, such test release may well still conflict with the procedures or principles articulated in 9.11.

Thus, requests not only for release of test materials (manuals, protocols, and test questions, etc.), but also for certain test data (test scores or responses where test questions are embedded or can be easily inferred) will typically fall under the guides and cautions contained in the original and restated Test Security position papers. True raw test scores or calculated test scores that do not reveal test questions, do not require such test security protection. It is unfortunate that the new 2002 revised APA Ethics Code, while clearly attempting, and for the most part achieving, clarity in endorsing the release of raw and scaled test scores, test answers, and patient responses, does not address the very practical problem of releasing data which imply or reveal test questions. This is not a trivial concern when state licensure board ethics committees may be forced to investigate charges that relate to such ambiguities. Until such clarifications are offered by APA, we suggest a conservative approach that protects these imbedded and inferred questions, and treating them as one would test materials as proffered by the NAN Revised Test Security Paper below. Further revisions of the NAN Test Security guidelines will follow any clarifications by APA of the Ethics Code.

Revised Test Security Paper

A major practice activity of neuropsychologists is the evaluation of behavior with neuropsychological test procedures. Many tests, for example, those of memory or ability to solve novel problems, depend to varying degrees on a lack of familiarity with the test items. Hence, there is a need to maintain test security to protect the uniqueness of these instruments. This is recognized in the 1992 and 2002 Ethical Principles of Psychologists and Code of Conduct (APA, 1992; Code 2.1, and APA, 2002; Code 9.11, Maintaining Test Security), which specify that these procedures are to be used only by psychologists trained in the use and interpretation of test instruments (APA, 1992; Codes 2.01, 2.06; Unqualified Persons; and APA, 2002; Code 9.04; Release of Test Data).

In the course of the practice of psychological and neuropsychological assessment, neuropsychologists may receive requests from attorneys for copies of test protocols, and/or requests to audio or videotape testing sessions. Copying test protocols, video and/or audio taping a psychological or neuropsychological evaluation for release to a non-psychologist potentially violates the Ethical Principles of Psychologists and Code of Conduct (APA, 1992; APA, 2002), by placing confidential test procedures in the public domain 2.10), and by making tests available to persons unqualified to interpret them (APA, 1992; Codes 2.02, 2.06 and 2.10; APA, 2002; Codes 9.04 and 9.11). Recording an examination can additionally affect the validity of test performance (see NAN position paper on Third Party Observers). Such requests can also place the psychologist in potential conflict with state laws regulating the practice of psychology. Maintaining test security is critical, because of the harm that can result from public dissemination of novel test procedures. Audio- or video recording a neuropsychological examination results in a product that can be disseminated without regard to the need to maintain test security. The potential disclosure of test instructions, questions, and items by replaying recorded examinations can enable individuals to determine or alter their responses in advance of actual examination. Thus, a likely and foreseeable consequence of uncontrolled test release is widespread circulation, leading to the opportunity to determine answers in advance, and to manipulate test performances. This is analogous to the situation in which a student gains access to test items and the answer key for a final examination prior to taking the test.

Threats to test security by release of test data to non-psychologists are significant. Research confirms what is seemingly already evident: individuals who gain access to test content can and do manipulate tests and coach others to manipulate results, and they are also more likely to circumvent methods for detecting test manipulation (Coleman, Rapport, Millis, Ricker and Farchione, 1998; Wetter and Corrigan, 1995; Youngjohn, 1995; Youngjohn, Lees-Haley & Binder, 1999). Consequently, uncontrolled release of test procedures to non-psychologists, via stenographic, audio or visual recording potentially jeopardizes the validity of these procedures for future use. This is critical in a number of respects. First, there is potential for great public harm (For example, a genuinely impaired airline pilot, required to undergo examination, obtains a videotape of a neuropsychological evaluation, and produces spuriously normal scores; a genuinely non-impaired criminal defendant obtains a recorded examination, and convincingly alters performance to appear motivated on tests of malingering, and impaired on measures of memory and executive function). Second, should a test become invalidated through exposure to the public domain, redevelopment of a replacement is a costly and time consuming endeavor (note: restandardization of the many measures of intelligence and memory, the WAIS-III and WMS-III, cost several million dollars, took over five years to complete, and required testing of over 5000 individuals). This can harm copyright and intellectual property interests of test authors and publishers, and deprive the public of effective test instruments. Invalidation of tests through public exposure, and the prospect that efforts to develop replacements may fail or, even if successful, might themselves have to be replaced before too long, could serve as a major disincentive to prospective test developers and publishers, and greatly inhibit scientific and clinical advances.

If a request to release test data or a recorded examination places the psychologist or neuropsychologist in possible conflict with ethical principles and directives, the professional should take reasonable steps to maintain test security and thereby fulfill his or her professional obligations. Different solutions for problematic requests for the release of test material are possible. For example, the neuropsychologist may respond by offering to send the material to another qualified neuropsychologist, once assurances are obtained that the material will be properly protected by that professional as well. The individual making the original request for test data (e.g., the attorney) will often be satisfied by this proposed solution, although others will not. Other potential resolutions involve protective arrangements or protective orders from the court. (See the attached addendum for general guidelines for responding to requests).

In summary, the National Academy of Neuropsychology fully endorses the need to maintain test security, views the duty to do so as a basic professional and ethical obligation, strongly discourages the release of materials when requests do not contain appropriate safeguards, and, when indicated, urges the neuropsychologist to take appropriate and reasonable steps to arrange conditions for release that ensure adequate safeguards.

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Exhibit J

Presence of third party observers during neuropsychological testing: Official statement of the National Academy of Neuropsychology

Pergamon

Archives of Clinical Neuropsychology, Vol. 15, No. 5, pp. 379–380, 2000

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B Axelrod (2000). Presence of third party observers during neuropsychological testing: Official statement of the National Academy of Neuropsychology. Archives of clinical neuropsychology, Vol.15(5), p.379-380

Presence of Third Party Observers During Neuropsychological Testing

Official Statement of the National Academy of Neuropsychology

Approved 5/15/99

Forensic neuropsychological evaluations are often constrained by the demand that a third party observer be present during the course of interview and formal testing. This demand may originate from counsel's desire to ensure that the neuropsychologist does not interrogate or unfairly question the plaintiff with respect to issues of liability and to ascertain if test procedures are accurately administered. In general, neuropsychologists should have the right to carry out their examination in a manner that will not in any way jeopardize, influence or unduly pressure their normal practice.

The presence of a third party observer during the administration of formal test procedures is inconsistent with recommendations promulgated in The Standards for Educational and Psychological Testing (APA, 1985) and Anastasi (1988), that the psychological testing environment be distraction free. More recently, standardized test manuals (for example, The WAIS-III, WMS-III Technical Manual; The Psychological Corporation, 1997) have specifically stated that third party observers should be excluded from the examination room to keep it free from distraction. The presence of a third party observer in the testing room is also inconsistent with the requirements for standardized test administration as set forth in the APA's Ethical Principles Of Psychologists and Code Of Conduct (APA, 1992) in that it creates the potential for distraction and/or interruption of the examination (McSweeny et al., 1998).

A second issue that relates to the potential influence of the presence of a third party observer is the reliance upon normative data. Neuropsychological test measures have not been standardized in the presence of an observer. In fact, neuropsychological test measures have been standardized under a specific set of highly controlled circumstances that did not include the presence of a third party observer. The presence of a third party observer introduces an unknown variable into the testing environment which may prevent the examinee's performance from being compared to established norms and potentially precludes valid interpretation of the test results (McCaffrey, Fisher, Gold, & Lynch, 1996). Observer effects can be such that performance on more complex tasks declines, in contrast to enhanced performance on overlearned tasks, leading to a spuriously magnified picture of neuropsychological deficit (McCaffrey et al., 1996). Likewise, observation of an examination being conducted for a second opinion may fundamentally alter the test session, in comparison to the initial examination that the patient has already undergone, potentially creating an adversarial atmosphere, and increasing the risk of motivational effects related to secondary gain. Observer effects can be magnified by the presence of involved parties who have a significant relationship with the patient (e.g.

legal representatives who have a stake in the outcome of the examination; cf. Binder and Johnson-Greene, 1995). Thus, the presence of a third party observer during formal testing may represent a threat to the validity and reliability of the data generated by an examination conducted under these circumstances, and may compromise the valid use of normative data in interpreting test scores. Observer effects also extend to situations such as court reporters, attorneys, attorney representatives, viewing from behind one-way mirrors and to electronic means of observation, such as the presence of a camera which can be a significant distraction (McCaffrey et al., 1996). Electronic recording and other observation also raises test security considerations that are detailed in the National Academy of Neuropsychology's position statement on Test Security.

It should be noted that there are circumstances that support the presence of a neutral, non-involved party in nonforensic settings. One situation might be when students or other professionals in psychology observe testing as part of their formal education. These trainees have sufficient instruction and supervision in standardized measurement and clinical procedures, such that their presence would not interfere with the assessment process. Other situations might include a parent's calming presence during an evaluation of a child.

The weight of accumulated scientific and clinical literature with respect to the issue of third party observers in the forensic examination provides clear support for the official position of the National Academy of Neuropsychology that neuropsychologists should strive to minimize all influences that may compromise accuracy of assessment and should make every effort to exclude observers from the evaluation.

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Exhibit K

Test security: Official position statement of the National Academy of Neuropsychology

and

Pergamon

Archives of Clinical Neuropsychology, Vol. 15, No. 5, pp. 383–386, 2000

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Official Position Statement of the National Academy of Neuropsychology

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A major practice activity of neuropsychologists is the evaluation of behavior with neuropsychological test procedures. Many tests, for example, those of memory or ability to solve novel problems, depend to varying degrees upon a lack of familiarity with the test items. Hence, there is a need to maintain test security to protect the uniqueness of these instruments. This is recognized in the Ethical Principles of Psychologists and Code of Conduct (American Psychological Association, 1992; Principle 2.1, Maintaining Test Security), which specify that these procedures are to be used only by psychologists trained in the use and interpretation of test instruments (APA Principles 2.01, 2.06, Unqualified Persons).

In the course of the practice of psychological and neuropsychological assessment, neuropsychologists may receive requests from attorneys for copies of test protocols, and/or requests to audio or videotape testing sessions. Copying test protocols, video and/or audiotaping a psychological or neuropsychological evaluation for release to a non-psychologist violates the Ethical Principles of Psychologists and Code of Conduct (APA, 1992), by placing confidential test procedures in the public domain (APA Principle 2.10), and by making tests available to persons unqualified to interpret them (APA Principles 2.02, 2.06). Recording an examination can additionally affect the validity of test performance (see NAN position paper on Third Party Observers). Such requests can also place the psychologist in potential conflict with state laws regulating the practice of psychology. Maintaining test security is critical, because of the harm that can result from public dissemination of novel test procedures. Audio- or video-recording a neuropsychological examination results in a product that can be disseminated without regard to the need to maintain test security. The potential disclosure of test instructions, questions, and items by replaying recorded examinations can enable individuals to determine or alter their responses in advance of actual examination. Thus, a likely and foreseeable consequence of uncontrolled test release is widespread circulation, leading to the opportunity to determine answers in advance, and to manipulation of test performance. This is analogous to the situation in which a student gains access to test items and the answer key for a final examination prior to taking the test.

Threats to test security by release of test data to non-psychologists are significant. Formal research (Coleman, Rapport, Millis, Ricker, & Farchione, 1998; Wetter & Corri-

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gan, 1995; Youngjohn, 1995; Youngjohn, Lees-Haley, & Binder, 1999) confirms what is seemingly already evident: individuals who gain access to test content can and do manipulate tests and coach others to manipulate results, and they are also more likely to circumvent methods for detecting test manipulation. Consequently, uncontrolled release of test procedures to non-psychologists, via stenographic, audio or visual recording potentially jeopardizes the validity of these procedures for future use. This is critical in a number of respects. First, there is potential for great public harm (e.g., a genuinely impaired airline pilot, required to undergo examination, obtains a videotape of a neuropsychological evaluation, and produces spuriously normal scores; a genuinely non-impaired criminal defendant obtains a recorded examination, and convincingly alters performance to appear motivated on tests of malingering, and impaired on measures of memory and executive function). Second, should a test become invalidated through exposure to the public domain, redevelopment of a replacement is a costly and time consuming endeavor (note: restandardization of the most widely-used measures of intelligence and memory, the WAIS-III and WMS-III, cost several million dollars, took over five years to complete, and required testing of over 5000 cases). This can harm copyright and intellectual property interests of test authors and publishers, and deprive the public of effective test instruments. Invalidation of tests through public exposure, and the prospect that efforts to develop replacements may fail or, even if successful, might themselves have to be replaced before too long, could serve as a major disincentive to prospective test developers and publishers, and greatly inhibit new scientific and clinical advances.

If a request to release test data or a recorded examination places the psychologist or neuropsychologist in possible conflict with ethical principles and directives, the professional should take reasonable steps to maintain test security and thereby fulfill his or her professional obligations. Different solutions for problematic requests for the release of test material are possible. For example, the neuropsychologist may respond by offering to send the material to another qualified neuropsychologist, once assurances are obtained that the material will be properly protected by that professional as well. The individual making the original request for test data (e.g., the attorney) will often be satisfied by this proposed solution, although others will not and will seek to obtain the data for themselves. Other potential resolutions involve protective arrangements or protective orders from the court. (See the attached addendum for general guidelines for responding to requests).

In summary, the National Academy of Neuropsychology fully endorses the need to maintain test security, views the duty to do so as a basic professional and ethical obligation, strongly discourages the release of materials when requests do not contain appropriate safeguards, and, when indicated, urges the neuropsychologist to take appropriate and reasonable steps to arrange conditions for release that ensure adequate safeguards.

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APPENDIX: HANDLING REQUESTS TO RELEASE TEST DATA, RECORDING AND/OR REPRODUCTIONS OF TEST DATA

Please note that these are general guidelines that may not apply to your specific jurisdiction. It is recommended that all psychologists seek advice from personal counsel to determine if these guidelines are appropriate for their specific jurisdiction.

1. Is the request in written form?
   If ***yes***, go on to 2.
   If ***no***, ask that the request be placed in written format.
2. Do you have a signed release from a competent patient?
   If ***yes***, go on to 3.
   If ***no***, obtain a signed release from the patient or, if the patient is not competent, from his or her legal guardian. (If competency is uncertain, e.g., the patient has deteriorated or competency has not been determined, an alternate course of action will be necessitated, e.g., contact the person who made the request and indicate you are not certain if the patient meets requirements to sign a release.)
3. Is the material to be released to a professional qualified to interpret the test data?
   If ***yes***, go to 4.
   If ***no***, go to 5.
4. Has the request included an assurance that test security will be maintained?
   If ***yes***, release the material.
   If ***no***, especially in certain circumstances (e.g., the psychologist is not known to you, litigation is ongoing), it may be prudent to ask for written assurance that test security will be maintained. The statement might indicate something like the following, "I agree to protect the test materials in accordance with the principles set forth in the APA Ethical Principles."
5. Is the request in the form of a subpoena (*not* a court order)?
   If ***yes***, respond in a timely fashion by indicating that complying with the request to release test data under these circumstances places the psychologist in conflict with professional practice guides and ethical principles and places him/her at risk for serious professional sanctions due to the need to maintain test security. Sections of the "APA Ethical Principles" and/or of the NAN Test Security Position Statement can be provided. The need to protect test security can be explained, and proposed solutions can be presented such as release to a qualified professional who agrees to maintain test security. If this is not satisfactory, alternative arrangements can be proposed; for example, all parties given access to test data

can assent to enter into a written agreement that contains the elements for protection of test materials. Alternatively, the suggestion can be made that a court order be issued containing these elements, at which time the data will be released.
If ***no***, go on to 6.

6. Is the request in the form of a *court order* (i.e., signed by a judge)?
   If ***yes***, go to 7.
   If ***no***, the request should fall under one of the previously listed categories (e.g., an informal request, a subpoena), and the reader should consult that section.
7. Does the court order contain adequate provisions for maintaining test security?
   If ***yes***, release the material
   If ***no***, go to 8.
8. Does the court order require release to an unqualified individual?
   If ***yes***, go to 9.
   If ***no***, go to 10.
9. Court orders are expected to be obeyed in a timely fashion and failure to do so can place the professional in direct conflict with the law and at risk for serious penalties (e.g., award of attorney fees, contempt orders). If the court order does not appear to maintain adequate test security because it instructs release to a non-psychologist, possible options include:
   a. Respond to the court by immediately releasing the data, but at the same time request that appropriate safeguards be put in place to maintain test security. For example, the need to maintain test security might be, briefly described, the NAN Statement and/or sections of the APA Ethical Principles might be provided, and the following arrangements requested:
      "I would ask that the test materials not be circulated beyond those directly involved in the case, that no unauthorized copies or reproductions be made, that the presentation of the test materials in the courtroom be minimized to the extent possible, that exhibits and courtroom records containing test materials be protected or sealed, and that all test materials be destroyed or returned upon the completion of the case".
   b. Seek personal counsel immediately from an attorney licensed within your jurisdiction, and, if counsel deems it appropriate, inform the court that the request to release test data creates a potential problem. A solution to the problem can be proposed as in 9.a. above.
10. Court orders are expected to be obeyed in a timely fashion and failure to do so can place the professional in direct conflict with the law and at risk for serious penalties (e.g., award of attorney fees, contempt orders). If the court order commands release to a qualified professional and contains adequate provisions for maintaining test security, release the material. If adequate provisions are not contained the same type of suggestions described under 9.a. or 9.b. can be presented. It is not recommended that you disobey a court order without seeking advice of personal counsel licensed within your jurisdiction.