## Crafty Cheaters & Determined Detectives:
## What You Need to Know About NPTE Security

*This article is based on a presentation by Julie Kernan, Vice President, Global Account Management, Prometric; Lorin Mueller, PhD, FSBPT Managing Director of Assessment; and James A. Wollack, PhD, Associate Professor of Educational Psychology at the University of Wisconsin-Madison (UW) at the 2014 FSBPT annual meeting.*

The reality of high-tech cheating affects the entire testing industry and requires high-tech methods of detection and prevention. The testing threat is greater now than 10-15 years ago. The opportunity to compromise large chunks of tests and large numbers of candidates getting scores that are not validly obtained means there must be great vigilance in policing the tests.

**Cheating Scandals in the Military**
It was reported that as many as 28 air traffic controllers received images of live test items from their proficiency exam. The military's response was: "It is important to note that at no time was safety, security or effectiveness of the air traffic control mission ever in jeopardy. However, as a prudent measure, those Airmen allegedly involved in the incident are not being scheduled for ATC-related duties at this time."

Up to 20% of the trainers were involved in cheating would be serving on nuclear submarines and nuclear aircraft carriers. They used a variety of means of cheating – group emails, flash drives, CDs, and communicating with officers on which specific part of the test they would be taking, thus not having to prepare for the entire test. This went on for seven years. The result was that 76 individuals were implicated and 34 sailors were expelled.

Nine Air Force commanders were fired and 100 officers in the U.S. nuclear missile program were implicated for using cellphones, answer sharing, passing answers back and forth. This is significantly troubling considering they are dealing with the use of nuclear weapons.

**Other Cheaters**
Because Russia covers nine time zones, students taking the Russian National Exam in Eastern Russia posted exam content to social network sites for those in Western Russia to access prior

to their taking the test several hours later. This is significant for NPTE testing since the exam is given around the world across many time zones.

In late 2011, two different cheating rings were uncovered in which groups of students were paying $1,500 - $3,500 to have other young adults take their SAT and ACT exams for them.

In 2012, it was discovered that for many years there was extensive use of recalls throughout most radiology training programs.

**The Technology Challenge**

No longer do test takers just copy others' answer sheets or bring in crib sheets, as in the olden days. Today, with advances in technology, it has become much easier for examinees to compromise the integrity of an exam through increased availability and quality of technology, coupled with lower costs, that all raise the threat level. Vigilant proctoring is essential, but may not be enough. Examinees will cheat brazenly and openly.

Formerly, cheaters would use a camera in a hat or a soda can or a necklace. Although these items were not particularly effective, they are no longer usually allowed in the test center.

Now there is Assistive Clothing with hidden cameras imbedded in them, or clothing with pockets inside pockets so when pockets have to be emptied, there are still hidden pockets that can hold cameras. Another is a pen that takes high-quality images, and a wallet that is actually a recording and transmitting device. Smart watches in the near future will have web browsers. These items all look normal and must be scrutinized effectively. Companies are marketing these means of cheating - "test cheating" technology is easily available just by surfing the Web.

**Emerging Problems**

Some items on the horizon include Wi-Fi cards in which the image is automatically posted to the Web as soon as it is captured. Google glasses will probably look like regular glasses and may be used to communicate during testing. There is a patent submission for a Bluetooth Wig with earpieces, etc. Google contacts could be used for night vision, medication distribution, and for diabetics, but we may be two years away from contact cameras that are completely undetectable.

The Web is a great way to disseminate and acquire information widely and anonymously; and to disseminate/acquire information on how best to disseminate information.

Some ways the Web is a threat in sharing test information are that there are more than 200 major Social Media sites listed on Wikimedia: Facebook, Twitter, Chat Rooms, Google docs, Group emails, YouTube.

Technology is advancing for those who are monitoring cheaters as well. Technology is one of the primary strategies used to prevent and detect cheating.

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**Prometric Test Administration Security**

Prometric is FSBPT's exclusive test delivery partner and is entrusted to protecting FSBPT intellectual property. In the bank of test questions, each item may be worth hundreds or thousands of dollars, so those who help in cheating are also taking away a very valuable asset that FSBPT owns.

Prometric maintains multiple levels of security to ensure all candidates who sit for the National Physical Therapy Examinations (NPTE) have a fair, valid and professional test experience. Prometric uses data security, physical security, comprehensive check-in procedures and ongoing security validation during the administration.

Prometric works in partnership with FSBPT staff following the administration to provide any required follow up reporting.

*Data Security*

Prometric's information security infrastructure includes multiple levels of firewalls, password protection and encryption technologies, along with protecting against unqualified individuals taking the tests.

Its Data Center has a state-of-the-art facility to house all examination and candidate data information in a secure environment; encrypted VPN (Virtual Private Network) communications; intrusion protection systems, and U.S. Department of Commerce Safe Harbor certification.

*Physical Security – Test Center Administration*

To protect the test, Prometric must confirm candidate identity (FSBPT must confirm identity prior to the test), prohibit restricted items and maintain examination security.

Prometric protects the environment by preparing the testing center, actively monitoring testing, and reporting all anomalies in real time. Prometric staff addresses each candidate by name, providing accurate information, and maintaining professionalism. In this way, Prometric maintains examination integrity, deters potential fraud, ensures a positive and consistent testing environment for each candidate, promotes accountability at the examination center level and reinforces Prometric's core values and mission.

At the test centers, Prometric maintains strict staffing requirements – a minimum of two certified Test Center Administrators (TCAs) must be onsite during each testing event. There

must be a consistent layout with a proctor area with viewing window and workstations with privacy walls. Also, it must be equipped for surveillance for real time, remote monitoring capabilities, long-term archiving, quality auditing and training, anomaly reporting and review. A vigilant proctor can find some cheating items people bring into the test center.

### Comprehensive Check-In Procedures

The candidate waiting area features comfortable seating and lockers for storage of personal items not permitted in the test lab area – including watches. The use of hand-held metal detector wands during candidate check-in are to detect and deter incidents of candidates bringing prohibited items into the testing room. Candidates are asked to empty their pockets, lift their pant legs, and roll up their sleeves to look for hidden cameras, crib sheets, etc. If the wand detects a metal device and the candidate says that everything required has been removed from the clothing, there is no strip search done, but a report is made to the Federation about the occurrence.

Each candidate is photographed and fingerprinted on test day. These are then compared with the database to eliminate identity fraud. These are used again if the candidate retests.

### Ongoing Security Validation

There is diligent proctoring of the testing room at all times. Every 8-10 minutes, there is a scheduled "walk-through" looking at each workstation. There is monitoring and reporting of suspicious behavior. Remote audits via digital recording devices are done. Each keystroke that a candidate makes is recorded so if a candidate takes an unscheduled break, returns to the workstation and changes answers, that is recorded and reported to the Federation for investigation.

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### FSBPT Security Monitoring

Fixed-date testing made cheating somewhat harder, but some may find a way to circumvent these processes. We need to know what looks suspicious – to identify those who have pre-knowledge of test questions or those trying to harvest questions.

Federation has a Tip Line that helped catch those using recalled items on the Internet. It receives four to five calls on the Tip Line each year and each is investigated.

Scores are statistically reviewed before they are reported to jurisdiction licensing boards; videos are reviewed from the test centers for suspicious movements, and scores and items are reviewed after they are reported using Caveon test security services and item stability analyses.

A candidate's legitimacy is investigated if they have a low score. Maybe that candidate is only harvesting questions and not trying to take the test legitimately. A Misfit is one who gets hard

questions correct but misses easy questions or one who takes the test very quickly – some are very intelligent or receives good feedback before retesting – but others are suspicious because of which questions they answer correctly. FSBPT also investigates candidates with large score gains. And two or more candidates who answer many of the questions the same way or have the same incorrect answers are also investigated/sanctioned.

*Methods of Investigation*

If a candidate has a suspicious score or behavior, a security survey is sent to the candidate. The survey asks how did the individual study, did the candidate know anyone else who is studying for the NPTE, and did the candidate understand the security agreement? The candidates may then self-incriminate by providing inconsistencies with what the Federation knows to be true, and clarifications on whether the candidate understands the security agreement.

Several candidates have admitted to not understanding the security agreement. Three candidates were caught based on giving the Federation information known to be inaccurate – they were then sanctioned and later admitted to have been given harvested items from a test prep company.

It is important to communicate testing expectations to candidates and show them that they agreed to certain security requirements three times prior to testing. Those with low scores are told about the need for remediation, and we will also look at problems with the test center.

*Sanction Models*

There are sanction models for three types of behaviors:
- Test scores identified through statistical flagging
- Exam center incidents
- Copyright violations

The types of sanctions given are:
- Waiting period
- Ethics course (two levels – one is a professional level, one is for those caught red-handed)
- Curative statement
- Monetary fines (for copyright violations only)

**What's Next?**
- Additional analyses prior to reporting scores to jurisdictions – fit and similarity analyses
- Additional pre-exam identification (registration clusters)
- Security Incident Management System

Methods of cheating and of maintaining security continue to evolve. The goal is to ensure that the security prevention and detection methods achieve greater success than the cheaters.

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**Julie Kernan, Vice President, Global Account Management, Prometric**
Julie Kernan serves as the Vice President of Global Account Management at Prometric. In this role, Ms. Kernan is responsible for leading a team of client services professionals to support Prometric's global client portfolio, which includes the Federation of State Boards of Physical Therapy and the NPTE Examinations. Her previous positions at Prometric have included vice president, executive director and director positions in the sales and marketing arenas. Prior to joining Prometric, Ms. Kernan served as director of sales for Kelly Services, Inc., the $5 billion staffing organization. Ms. Kernan holds a bachelor's degree from Indiana University in Bloomington, Indiana, where she focused on human resources and business courses. In addition to her education, Ms. Kernan is very active in the testing industry through ICE and serves on the Board of House of Ruth Maryland.

**Lorin Mueller, PhD, FSBPT Managing Director of Assessment**
Lorin joined the FSBPT's Assessment Department in November 2011. Prior to joining the FSBPT, Lorin spent 10 years as Principal Research Scientist at the American Institutes for Research in Washington, D.C. He has contributed his expertise in statistics, research design and measurement to projects in a wide variety of areas, including high-stakes test development, work disability assessment, K-12 assessment, assessing students with cognitive disabilities, teacher knowledge, teacher performance evaluation and school climate. He is a nationally recognized expert in the field of setting standards for occupational assessments and has published or presented in nearly all of the areas he has worked. Lorin received his Ph.D. in Industrial and Organizational Psychology with specialization in statistics and measurement in 2002 from the University of Houston.

**James A. Wollack, PhD, University of Wisconsin—Madison (UW)**
James Wollack is an Associate Professor of Educational Psychology at the University of Wisconsin—Madison (UW), and serves as the Director of the UW Testing & Evaluation Services and the UW System Center for Placement Testing. Dr. Wollack's scholarly interests focus most squarely on issues associated with test security and test construction, having published numerous articles in scholarly journals and delivered many presentations at professional conferences. He is also the co-editor of the Handbook of Test Security (2013, with J. Fremer). Dr. Wollack frequently consults with state testing programs and testing organizations (including serving on the FSBPT Technical Advisory Panel), serves as an expert witness to certification agencies on cases involving suspected cheating on high-stakes exams, and presides over cases of alleged student academic misconduct at the University of Wisconsin. Dr. Wollack is currently on the Board of Directors for the National College Testing Association and the Executive Committee for the Conference on the Statistical Detection of Potential Test Fraud. He recently completed a term on the Board of Directors for the National Council on Measurement in Education and is a past President of the Measurement Services Special Interest Group of the American Education Research Association (AERA).