

Test Publisher™

News and Information for providers of assessment products and services from the Association of Test Publishers

ATP: The intelligent voice for testing

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It's an anniversary and a conference!

**ATP's
Innovations in
Testing
Conference 2009**

**Celebrating 10
years of excellence**



Join the Association of Test Publishers at the Westin Mission Hills February 22-25, 2009 as we celebrate a decade of bringing the assessment industry together for this high quality educational and networking event!

Launched in 2000, the *Innovations in Testing* Conference has grown not just in numbers but in depth as well.

"Our attendees come from around the globe to participate in what has become an annual, International event in the world of assessment," remarked ATP CEO Dr. William G. Harris.

This year, he said, ATP is expecting 750 attendees with representation from more than 14 countries.

This year the conference will be kicked off with ATP's second annual [Security Summit](#).

Dear Colleagues,

Welcome to the Association of Test Publishers online newsletter. To reference past issues of the Test Publisher Newsletter you can go to the ATP website at www.testpublishers.org. go to Publications, go to Newsletter and then click on View our Archive. Or just click here! [ATP Newsletters](#)

ATP Sponsor of NOCA Leadership Credentialing Forum

ATP participated as a Gold Sponsor September 8, 2008 at the first Credentialing Leadership Forum organized by the National Organization for Competency Assurance (NOCA).

In preparation for the Forum, registrants were provided a survey to obtain data on overall trends of the credentialing industry related to growth and trends impacting growth. The questions covered four general categories: growth projections, regulatory trends, international trends, and quality.

Those credentialing leaders responding to the survey anticipated long-term growth for the industry, but also indicated there are significant strategic issues/threats that if not planned for can have a significant negative impact on the quality of programs delivered as well as limiting the potential growth.

Respondents were asked to provide the top issues/threats that could impact their growth rate targets. These issues included (in order of their perceived threat from greatest to least) resources, economy, value of certification, market size, competition, technology and government/regulatory issues.

In a subsequent question, respondents were asked to list other major trends/concerns that could impact industry growth that they felt were not addressed elsewhere in the survey or in their responses. The following summarizes the responses received:

- Global awareness/competition
- Inadequate QA tools
- Standards for psychometric, test developers and test administrators
- Security/Identity theft

For a complete copy of the Leadership Credentialing Forum Survey contact Lauren Scheib at LScheibatatp@aol.com

News from the Divisions

From the Desk of Education Chair Denny Way, Pearson Assessments

The Education Division - like the other ATP divisions is busy reviewing the abstracts submitted for *Innovations in Testing* 2009. We look forward to the sometimes difficult challenge of evaluating the interesting and creative abstracts that are submitted for consideration. The proposal evaluation process continues to evolve and the increased rigor and standardization will help to ensure a consistent and fair evaluation process.

The Best Practices working group continues their efforts and is moving towards a draft document that will soon be distributed among members of both ATP and the Council of Chief State School Officers (CCSSO) for comment. For more information, the presentation made by this group at the 2008 annual meeting can be found at in the Members' area of the ATP web site at

Dr. Harris added that [sponsorship opportunities](#) are still available for both the Conference and the Summit.

<http://www.testpublishers.org/MembersOnly/memednews.htm>.

ATP Thanks our 2009 Conference Sponsors who have signed on thus far!

[Sponsorship opportunities are still available!](#)

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In Memorium

Steve Coffman

ATP Chairman of the Board
1997-1998

Steve Coffman, former President of Reid Psychological Systems and a founding member of the Association of Test Publishers passed away September 21, 2008.

Steve's leadership tenure was

From the Desk of the Europe-ATP Division Chair Cor Sluijter, Cito

The European Division is still focusing on preparing a proposal for the first European conference of ATP. The rough outlines of the plans were presented at the meeting of the European Division in Dallas as well as to the ATP's Board of Directors.

This proposal was also the main theme of a meeting of the European Division held in Liverpool, UK, on July 16 and 17, 2008. Feedback from this meeting is now being used to finalize plans for the conference. More concrete information about the results of the meeting can be found at our Wiki site at

<http://eutestpublishers.wikispaces.com>. We are planning for a two day conference, to be held in Brussels in the last week of September, or the first week of October 2009. And of course, although the conference will be held in Europe, this does not mean that the program will not be appealing to test publishers from the other side of the Atlantic.

When we begin planning the conference in earnest, as I already mentioned in my last message, we then will be in need of volunteers. So if you would like to serve in the near future on the sponsorship, marketing or program committee for the European conference, don't hesitate to let me know, or contact one of my fellow officers, Paul Howarth or Eugene Burke, or our 2007 Chair Eric Shepherd. Our e-mail-addresses can all be found at our Wiki site under the subheading "Officers of ATP".

From the Desk of the Clinical Division Chair Hazel Wheldon, Multi-Health Systems

The Clinical Division has been busy following up on the strategic planning initiative launched at the ATP conference in Dallas. Thanks to the efforts of Krista Isakson and Ted Jackson, we contacted more than 40 individuals from both member and nonmember organizations and had 15 people attend the session at the APA conference designed to bring some focus and direction to the goals of the Clinical Division. The session was facilitated by Marcia Andberg and was an opportunity for us to consider critical issues that are common to all the publishers in the group and that would benefit from our combined experience and expertise. The meeting was extremely productive. Marcia kept us all on track and by the time we completed the session we had a list of critical issues, some priorities, work groups and next steps worked out. At the time of submitting this newsletter piece we are still working on the final minutes from the meeting, but expect more information soon from the Clinical Division on the issues. And please do not hesitate to contact us if you feel that you would like to be involved in working on one of the topics. We are a small group and every little bit of help we can get is important. Feedback on the issues identified is also welcomed from those who were unable to attend the conference.

The next face to face meeting for the Division will be at the ATP Conference in Palm Springs, CA. However, the work groups will be having teleconference meetings on the areas they have identified and we hope to have a Divisional conference call in late November. Details of this will be forwarded to all Divisional members in October.

Guest Article

by Gene Radwin, Ed.D. of EMC Corporation
Member since 2001

Fingerprinting Certification Cheaters

marked by a series of significant accomplishments, including double-digit growth for 10 consecutive years at Reid Systems, acquisition and development of key technologies to better serve the marketplace, and overall management of several extraordinary client projects, including a \$100 million project with the Transportation Security Administration and a massive automated hiring program for the world's largest retailer. Steve had also been professionally recognized during his tenure, being named one of *Recruiter Magazine's* "Top 100 Most Influential Executives in Recruiting".

In 2003 Steve was diagnosed with head and neck cancer and in 2005 doctors discovered a GBM brain tumor, one of the most serious and deadly brain tumors.

But rather than let this disease consume his life, as it had so many others, Steve decided to fight back. Inspired by the physicians and community from which he had drawn so much support and expertise, Steve decided to found unlockingbraintumors.org

Simply put, Steve realized that while the disease had forced him to step aside from his previous leadership role, he had another leadership role to play, and that he was uniquely positioned to lead the charge against this terrible disease.

Steve gave up his personal battle on September 21, 2008, surrounded by many loving family members and friends.

But Steve's fight to find a cure will continue through his foundation and through the many lives that he touched.

ATP CEO Dr. William G. Harris remarked that "Steve will be deeply missed as a person and friend, but the good works he dedicated his life to will continue to shape both the industry he left behind, and the medical community he inspired, for a great many decades yet to come."

This article describes several steps that the EMC Proven Professional certification program has taken to protect the integrity of its exams. A brief description is provided of how EMC has identified sources of cheating and actions taken. The article focuses in on a recently introduced practice of seeding exams with types of questions that can "fingerprint" candidates who rely on stolen copies of exams. The power of the fingerprinting process is described in a report of recent results on one EMC exam.

Steps to Reduce Cheating

IT certification programs individually and via industry associations are seeking to address problems of cheating. Most programs are very careful to ensure that exams remain confidential as they are developed. Access to exams is on a need-to-know basis. Programs use secure communications channels to transmit exam materials. Some programs analyze exam results to identify suspicious patterns (e.g., high jumps in scores for a candidate on an initial testing and on a retest; testing centers which have results significantly higher than other testing centers). Programs also seek to close down websites that offer copies of their exams. Microsoft has pursued a well-publicized effort against one of the most notorious websites.

Protecting Proven

The EMC Proven Professional Program has been extremely proactive in addressing issues of security.

Security Audit: In 2005, the Proven Program had a third party firm that specializes in exam security conduct an audit of its exam practices. The audit found that Proven was employing many appropriate security practices (e.g., requiring NDAs of exam developers and limiting access to exam materials). However, the audit offered recommendations to improve security further and these were subsequently adopted, including:

- transmit exam files to test publishing vendors via secure FTP sites and use password protected files
- provide a secure environment for field SMEs to review exam questions
- create multiple forms of each exam, making it more difficult for cheaters because they can not be certain which questions they will actually be tested on.

Ongoing, Active and Regular Monitoring: The EMC Proven Program has also engaged third party firms to assist in efforts to improve security and reduce cheating:

One firm provides monthly analyses of Proven exam results for evidence of cheating and other improprieties. Using these analyses, the Proven Program Security Manager has

- barred Proven exams from being delivered at specific testing centers that did not adhere to appropriate security practices
- notified candidates that their results are suspicious

Another firm provides EMC with 24-by-7 monitoring of the world wide web to identify websites and other internet locations (blogs, etc.) that are offering illegal copies of Proven Exams. Based on the reports, the Proven Security Manager has

- had EMC's IT organization bar access on the EMC network to websites that offer EMC exams for sale as these websites are identified
- requested that third party payment services (e.g., PayPal) and web hosting services stop doing business with firms that offer Proven exams illegally

Identified Leaky Faucet: In late 2006, EMC found that one of its exams was for sale on the web before anyone had actually taken the exam at a testing center. After purchasing the exam, EMC determined that it was the actual exam and that it was in the format created by the testing vendor, not in the format in which EMC sends the file to the testing vendor.

How could this exam have been stolen? A band of fraudulent test takers could not have memorized exam questions because no one had yet taken the exam. Nor could the exam files have been stolen from EMC.

EMC investigated and in the end found a significant "hole" in the security operations of one test delivery vendor. Individual testing centers, in parts of Asia, were signing up fake candidates under false names to take EMC exams. Once these phony candidates were registered for an exam, the testing center could download the exam files for duplication and sale.

Pinpointing Sources: During 2006, EMC expanded the reach of its program by contracting with a second test delivery company. EMC exams would now be easily accessible by candidates worldwide. However, EMC wanted to be sure that by adding a second vendor it did not make it more difficult to discover the sources of stolen exams. Thus, EMC initiated the practice of slightly modifying the exams that are delivered by the two vendors. Insignificant,

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Associate Vice President, Scoring Services/ National Board of Medical Examiners. The primary duties of this highly visible senior level position include directing, supervising, and managing scoring, equating, and examination processing of all operational programs at NBME; directing, managing, and participating in research activities within NBME and in collaboration with other organizations; and representing NBME at external meetings. The Associate Vice President is responsible for assuring adequate staffing for scoring and processing all operational examinations and for mentoring and supporting the growth and development of the approximately 30 Scoring Services staff, which includes psychometricians, measurement analysts, and support staff.

Assistant Scientist/ The University of Wisconsin Center for Placement Testing, a unit within the UW-Madison Office of Testing and Evaluation Services.

This position will help oversee the development and validation of the college placement tests that are used throughout UW-System for placement into the introductory levels of English, French, German, mathematics, and Spanish. This position is a hybrid between working in academia and working at a testing company, in that the person will be intimately involved in operational test development work (e.g., test construction, equating, standard setting), but will also be expected to maintain an active program of original research, and will have periodic opportunities to teach, either in the form of graduate courses or as professional development workshops to faculty and instructional staff. The start date for this position is negotiable, between

non-substantive changes were introduced to a subset of questions of exams. For example,

- one test vendor might have a question that began "Your customer needed to increase its storage capacity"
- the other vendor would have the same question written as "A customer needed to increase its storage capacity "

These minor differences have, in fact, demonstrated their usefulness. EMC has been able to use these differences to identify which vendor was the source of exams that were available on the net for sale,

Limits of current efforts

With all of the efforts and tactics that EMC had employed, a gap still remained. The processes that were instituted could not easily identify a single individual who had procured a copy of an exam ahead of time. The potential identifiers of single individual cheating were limited to time and to score jumps:

- time: if a candidate raced through an exam, answering questions at an extremely rapid pace, that would be a possible indication that the candidate had prior access to exam questions and answers
- score jumps: if a candidate's score rose significantly from one administration of an exam to another and if the two administrations were close in time, this also would suggest that the candidate may have obtained access to exam questions and answers before the second exam administration

However, a cautious cheater could easily defeat time as an indicator by simply slowing down. And score jumps would not be displayed if a candidate had access to exam questions and answers before taking an exam the first time.

Something else would be needed to "fingerprint" other potential cheaters.

Creating a fingerprint

Goal: design exams in such a way that people who cheat will have a pattern of results that differs from those who are honest

Would it be possible then to "help" cheaters leave fingerprints? Would it be possible to design exams in such a way that the results would be self-incriminating to "cheaters"?

To do so, consider how different groups can be expected to perform on a certification exam

<u>"Type" of Candidate Exam</u>	<u>Expected Score on Certification Exam</u>
Honest, knowledgeable exam takers	High
Honest, unknowledgeable exam takers	Low
Dishonest exam takers relying on stolen exams	High

The certification questions themselves distinguish knowledgeable from unknowledgeable candidates. In effect, exam scores provide a "fingerprint" for who's knowledgeable and who's not.

Dishonest candidates, however, will score similarly to honest and knowledgeable ones. Certification exams, as usually structured, obscure cheating. The issue: could an exam be structured or questions created that would highlight cheating? Could questions be included on an exam that would distinguish honest and knowledgeable candidates from dishonest ones? Could a way be found to have cheaters leave their fingerprints?

What would be needed is simple conceptually: add questions to an exam on which honest and knowledgeable test takers would score differently from dishonest test takers. How, though, could cheaters be made to answer differently?

The cheaters of primary concern were those who rely on stolen copies of exams - copies which contain not only questions and distracters but also identify the correct answers as those answers have been keyed. What if the stolen copies could be subverted so that cheaters were relying on "bad" information?

The answer to this challenge was not in the question content per se but in how the answers were scored. Take as an example a simple multiple choice question:

How much is 2 + 3?

- A) 4 B) 5 C) 6 D) 7

1/1/2009 and 9/1/2009.

Director, Client Services/Measured Progress

The Director of Client Services will develop and implement plans to ensure long-term revenue growth and delivery of the highest quality programs and services in the assigned segment of the large-scale state assessment market. The assigned segment will include major, complex, and mission-critical programs of at least \$10 million dollars in annual volume. The primary responsibilities are to monitor and guide all assigned client services activities and maintain direct contact with clients to meet client needs and enhance the company's reputation. The Director will contribute to the development of cost-effective, flexible, innovative, and scalable designs for high-stakes programs. The Director also will interact frequently with staff from many other departments within the company to represent the clients' needs and perspectives, as well as to provide information critical to developing timely and effective solutions. In addition, the Director will communicate the company's direction to clients and influence future objectives and planning.

To apply for these jobs and see other jobs available click on the [ATP Career Center](#)

or go to www.testpublishers.org and click on Careers.

Did you know ...

ATP monitors legislation year-round in state legislatures across the U.S., as well as in the U.S. Congress and other countries.

ATP retains legislative counsel in Washington D.C. so that any initiatives that are considered a "serious concern" can be acted upon immediately.

ATP identifies initiatives that are considered "of interest" to

Anyone with knowledge of basic arithmetic would select "B" as the answer. However, suppose that the test key had identified "D" as the correct choice. In this situation, people who know basic addition will select B and will be scored as getting this question wrong. However, if someone was relying on a stolen answer key, that individual would select D as the answer and get the question "correct." Consequently, an honest, knowledgeable person would answer the question one way and a dishonest person, another.

Here, then, was a means to elicit a distinctive pattern for "cheaters" - add questions to an exam which were (1) easy and (2) which had the incorrect answer coded as the correct answer. Like Homer's Trojan Horse, these mis-coded, easy questions would undermine those who tried to use them. Honest takers would be scored as answering such questions incorrectly; dishonest test takers would be scored as answering them correctly.

Question asked graph

With a series of such questions on an exam, honest test takers and cheaters would have distinctive patterns on exams.

Westin Main Building

Thus, adding easy questions that were incorrectly coded - Trojan Horse Questions - would make exams self-incriminating for cheaters.

These Trojan Horse questions would not be used in calculating a candidate's official score on an exam. They would be used to help identify cheaters.

The Power of Trojan Horse Questions

An exam would not need to have many such questions to be effective in identifying cheaters. Five to seven should suffice. For example, exam A has 50 real questions and 6 Trojan Horse [TH] questions. If someone scored 90% on the real exam questions, how likely is it that such a person would select the incorrect but coded as correct answers on the TH questions. The answer is very, very low.

For someone who scored 90% correct on the rest of exam A, the odds of answering 6 of 6 or 5 of 6 TH questions as coded is 0.000014. The odds don't improve much for someone who scored 80% correct on the exam.

Here, then, is a mechanism for shining a light on cheaters.

Implementation: The "Trojan Horse" strikes

The EMC Proven Program has begun adding Trojan Horse questions to exams. One exam had 5 Trojan Horse questions. These questions were selected from previous versions of the exam and were known to have very high pass rates --- the questions were demonstrably easy.

During a six week period, the exam was taken 650 times. The following table displays the results on the Trojan Horse questions by quartile.

Number of Candidates graph

As can be seen, 29 candidates from the lowest quartile answered one Trojan Horse question correctly (as keyed) and one candidate from this quartile answered two TH questions correctly. Since these are the least knowledgeable candidates, it is not surprising that more of them answered the TH questions correctly. However, the "easy-ness" of the TH question is evidenced by the fact that the vast majority of these less than expert candidates answered the TH questions accurately, and not as keyed.

In the next quartile, the number of candidates answering any TH question as

the testing industry. These are posted on a regular basis on the ATP website.

To view any of these initiatives in their entirety ATP members can login to the Members-Only area of the ATP website at www.testpublishers.org Go to Legislative/Legal and then click on State Net. Or click here [Legislation](#)

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keyed falls markedly - from 31 to 7. Again, this is another indicator of the fact that the TH questions are easy questions.

In the third quartile, the discriminatory power of the TH questions can begin to be seen. Only two candidates in this presumably more knowledgeable group answer TH question correctly. One candidate answered one such question correctly, a fact that can be attributed to random error. The other candidate answered four of the five questions as keyed. This candidate scored 88% on the rest of the exam. The probability of a person answering 4 of 5 Trojan Horse questions correctly when scoring 88% on the exam is approximately .0008. A small probability to be sure but debatable perhaps.

In the highest scoring quartile, we find results that are scarcely debatable. In this quartile, two individuals scored 98% on the exam and yet answered all 5 TH questions as keyed. These individuals, then, seemed to demonstrate high level proficiency on the exam content (98% correct) and yet they answered 5 very easy questions incorrectly. The probability = 0.0000003.

Here, then, is proof - DNA testing level proof - that these two candidates did not rely on their knowledge and experience to answer an EMC certification exam. Instead, these individuals were relying on the answers, illegally obtained, from the exam answer key. EMC is taking action against these individuals.

Conclusion

Trojan Horse questions offer a means then to turn cheaters' behavior against the cheaters. The tests that cheaters procure can be seeded with questions that will assist certification programs to identify those who cheat and to take appropriate action against them.

The TH questions also offer a means to identify the extent of cheating on certification exams. Such information will help the program management team to determine which actions are warranted to protect test sponsor assets.

The TH questions could potentially be used by exam test vendors to flag results at the time of testing. Criteria could be established whereby results could be flagged for action or withheld at the time of testing if a candidate scores a certain level or higher on an exam and answers a certain number of TH questions as keyed.

Trojan Horse questions can become one tool that test sponsors employ to reassert honesty in high stakes testing.

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