



Online Pre-Employment Testing: What's under the Hood?



Human Resource Services

Howard Fortson, Ph.D., IPMA-CP
Jennifer Wynn, M.S.
PTC Annual Conference
March 11, 2010



About CPS Human Resource Services

Who We Are

CPS is a self-supporting public agency providing a full range of human resource services to the public and nonprofit sectors. We have unique expertise in delivering HR management and consulting services, employment testing, assessment services, and applicant tracking software to government agencies throughout North America. We provide organizational strategy planning models and systems to assist agencies in the recruitment, selection, and development of employees.

Our Vision

Enabling people to realize the promise of public sector.

Our Mission

To transform human resource management in the public sector.





Overview of the Presentation

- **What is a test**
- **Survey**
- **Online testing: Benefits/Challenges**
- **Unproctored Testing**
- **Logistics/Processes**
- **Online Testing Example**
- **Future Directions**
- **Questions?**



What is a Test?

- **Any measure, combination of measures, or procedure used as a basis for any employment decision** (*Uniform Guidelines, 1978*)
- **Any procedure used singly or in combination to make a personnel decision** (*Principles, 2003*)
- **An evaluative device or procedure in which a sample of an examinee's behavior in a specified domain is obtained and subsequently evaluated and scored using a standardized process** (*Standards, 1999*)



What is a Test?

- **Job Application**
- **Training and Experience Evaluation**
- **Multiple Choice Written Exam**
- **Personality Profile**
- **Medical Evaluation**
- **Background Investigation**
- **Performance Appraisal**
- **Others**



Testing Survey

Testing Survey



Human Resource Services



Survey Administration

- **Given the economic down turn, what are agencies thinking?**
- **Follow-up to a survey CPS conducted in May 2008**
 - Exploratory in nature
 - Wanted to know what online testing tools public agencies currently use and what they are planning to use
- **Survey was emailed to public agencies that have worked with CPS**
 - Survey was available online from May 28 to June 12, 2009
 - 3,350 emails were sent to valid email addresses
 - 689 respondents
 - 20.6% response rate



Survey Results

Importance of Proctored Online Cognitive Ability Testing *Now*

	2008 N=429	2009 N=657
Not Important	30.5%	44.4%
Somewhat Important	30.1%	18.9%
Important	16.1%	11.3%
Very Important	8.4%	7.5%
Don't Know	14.9%	17.9%
Total	100.0%	100.0%

- Importance of unproctored online testing *now* was less than importance of proctored online testing
- Agencies who recruit/test more are more likely to view both proctored and unproctored testing as being more important to their agency *now*



Survey Results

Importance of Proctored Online Cognitive Ability Testing *Next 1-2 Years*

	2008 N=429	2009 N=657
Not Important	12.4%	22.8%
Somewhat Important	30.5%	23.7%
Important	24.2%	16.1%
Very Important	19.1%	11.4%
Don't Know	13.8%	26.0%
Total	100.0%	100.0%

- Importance of unproctored online testing in the *next 1-2 years* was less than importance of proctored online testing
- Agencies who recruit/test more are more likely to view both proctored and unproctored testing as being more important to their agency in the *next 1-2 years*



Where Next?

- Online Testing
 - Benefits
 - Challenges
 - Unproctored Testing



Focus on Multiple Choice Testing

- Focusing on multiple-choice testing
 - Traditional multiple-choice item with four alternatives
 - Multiple-choice items are *easily scored* in an objective manner
 - Most effective at discriminating between good and poor examinees
 - Most reliable



Benefits of Online Testing

Benefits



Benefits to Online Testing

- **Decreased Cost:** charge for what you use, not shipping, etc. (Cober et al., 2000) (Mooney, 2002)
- **Organizational Image** (Van Rooy, Alonso, & Fairchild, 2003)
 - Seen as up to date (Sinar, Reynolds, & Paquet, 2003)
 - Candidates may prefer it to paper-and-pencil (generational) (Potosky & Bobko, 2004)
- **Easier to update tests** (Naglieri et al., 2004)
 - Don't have to throw away printed copies of outdated tests
- **Increased Standardization** (Chapman & Webster, 2003) (Naglieri et al., 2004)
 - Test administered the same way every time
- **Improved Security**
 - No paper copies
- **Flexibility**
 - Test at any time (Naglieri et al., 2004)
 - Use item formats not compatible with paper-and-pencil (Foster, 2009)
 - Computer adaptive testing



Challenges to Online Testing

Challenges



Challenges to Online Testing

- **Different Test Security Issues**
 - Candidate concern over personal information (hacking)
 - Item exposure (Tippins et al., 2006)
- **Possible Technical difficulties**
 - Can have negative effects on organizational image (testing fail) (Sinar, Reynolds, & Paquet, 2003)
 - Over reliance on technical expertise (vendor) (Russell, 2007)
- **Not necessarily lower cost**
 - Implementation and resources can be costly (Chapman & Webster, 2003) (Russell, 2007)
- **Equivalency to paper-and-pencil version**
 - May not replicate selection validity of paper-and-pencil version (Potosky & Bobko, 2004) (Meade, Michels, & Lautenschlager, 2007)
 - Other types of issues may be relevant
- **Accommodations**
 - May be difficult to accommodate certain disabilities (Tippins et al., 2006)



Unproctored Testing

Unproctored Testing Anyone?



What Do We Know About Unproctored Testing?

- **Equivalence to Proctored Scores**

- **Speeded cognitive ability test scores tend to be similar** (Arthur et al., 2009) (Nye et al., 2007)
- **“The extant research suggests that the validity of an unproctored test is lower than that of a proctored test but is often significantly greater than zero”** (Tippins, 2009)

- **Candidate Perceptions**

- **There may be a perception of lack of procedural fairness** (Pearlman, 2009)
- **The burden of appropriate testing conditions is placed on the candidate** (Tippins, 2009)
- **Candidates may prefer unproctored if it provides greater flexibility and faster responses** (Gibby et al., 2009)



What Do We Know About Unproctored Testing?

- **Cheating**

- **Who's actually taking the test** (Tippins et al., 2006)
- **Cheaters may be found across the entire distribution of scores** (Arthur et al., 2009)
- **Shouldn't use top down approach when looking at scores** (Dragow et al., 2009)
- **Verification testing appears to deter cheaters** (Nye et al., 2009)

- **Implementation**

- **May not be the right solution for some jobs or test types** (Hense, Golden, & Burnett, 2009)
- **May be most appropriate for large scale testing** (Nye et al., 2009)
- **Some believe it's unethical and should never be used in high stakes testing** (Pearlman, 2009)
- **Test/Verification is complex at best**



What Do We Know About Unproctored Testing?

- **Agency Acceptance**
 - **May not be politically acceptable**
 - **Civil Service Commissions**
 - **Public skeptical**
 - **Challenging to concept of civil service**
 - **a system or method of appointing government employees on the basis of competitive examinations, rather than by political patronage**



Online Testing Logistics

- **Testing Room**
 - Lighting, quiet, safe
 - Cubicles—screens not viewable by neighbor
- **Scratch Paper**
 - Mathematical items will still require calculations
 - Handling of materials, calculators, etc.
- **Computers**
 - Need to have sufficient numbers, quality (screen size), generation
 - Standardization across settings for large agencies
- **Goal to have agency independent**
 - Control their own testing situation



Online Testing Logistics

- **Staffing**
 - Who and how big a burden
 - Training for proctors
- **Security: Different Twist**
 - Proctor, hacking, unauthorized access
- **IT Support**
 - **Agency Side**
 - Need agency IT on board and supporting
 - Internet access (firewalls, etc.)
 - Network accessibility
 - **Vendor Side**
 - Support
 - Off hours support



Process Change

Changes in Examining Process



Change in Processes

- **Scheduling/Testing Candidates**
 - Email Invitations
 - Flow vs. Assembled
 - Ability to Automate Process
 - Onus on candidate
 - Scheduling
 - Staying in process
- **Accommodating large candidate populations**
 - Test centers vs. walk-in testing
- **Ease of testing small candidate groups**
 - Preserving/introducing measurement rigor



Change in Processes

- **Leveraging Computerized testing**
 - **Speed**
 - **Test**
 - **Process**
- **Phases of selection process**
 - **Pre-application**
 - **At application**
 - **At interview**
- **Special Accommodation**
- **Transitioning to on-line/computer-based testing**
 - **Depends on KSAs to be measured**



Change in Processes

- **Use measurement /assessment other places in your “system”**
 - Hiring interview
 - Redeployment
- **Possible Ideas:**
- **Small Applicant Groups**
 - Min Qual. → Interview + (work sample of online multiple choice & practical Excel skills)
- **Larger Applicant Groups**
 - Min Qual. → Written Test → Interview (online personality test & practical Word skills)



Online Example

One example of online
testing



CPS Online Example

- **Client Side**
 - **How candidate ID is created**
 - **Proctored or unproctored**
- **Log onto a Test**
 - **Bio data**
 - **Information pages**
 - **Item functioning**
 - **Timer, progress bar, forward/back buttons**
 - **Results**



Login Screen



Welcome, please provide your activation code to start this candidate experience:

i What is my Activation Code?

The activation code is a unique number that identifies you and gives you access to the candidate experience.

If you do not have your activation code, please contact your test administrator.





Welcome Screen



Welcome and thank you for your interest in this assessment process.

When applicable, additional instructions will be provided to you during the assessment.

Please note that your browser window should be maximized for optimal viewing of the screens.

When your session is completed, you may close your browser. If your session is disrupted, ask your proctor for a new activation code, wait a few moments and log back in. Any answers you have entered and submitted successfully will appear at re-login.

If you have any questions, please alert your proctor.

Click on "Next" when you are ready to begin.

Next

Copyright 2008-2009 CPS





Instruction Screen



Personal Information

Please begin by answering a few demographic questions. After you have completed these questions, your session will begin.

Click **NEXT** to start your session.

Next

Copyright 2008-2009 CPS





Instruction Screen

Biodata - Personal Information



Human Resource Services

Personal Information *Required Field

First Name*

Middle Initial

Last Name*

ID Number*

Email:

Next

Copyright 2008-2009 CPS



Human Resource Services



Instruction Screen

Biodata – EEO (optional)



Human Resource Services

Personal Information *[These questions are optional]*

Gender

Male

Ethnicity:

Hispanic

Highest Grade Completed:

16

● Next

Copyright 2008-2009 CPS



Human Resource Services



Instruction Screen

Instructions to Candidates



INSTRUCTIONS TO CANDIDATES

This test and the items it contains are copyrighted property of CPS Human Resource Services.

DO NOT:

Make copies or notes of the test questions.

Transmit test questions in any form to any other person or entity during or AFTER the examination.

ANY VIOLATION WILL BE PROSECUTED TO THE FULL EXTENT OF THE LAW.

Copyright 2008-2009 CPS

Next





Instruction Screen

Exam Hints/Tips



EXAMINATION HINTS

Read carefully and follow the directions given in the instructions.

Read each question completely before answering it.

Do not spend too much time on any one question.

No question is meant to be a "trick" or catch question.

Interpret words according to their generally accepted meanings.

Attempt to answer every question. If you are not sure of the correct answer, mark the one which you think is best. There is no penalty for wrong answers. Your score is based on the number of correct answers.

Be sure you have answered all the test items.

Copyright 2008-2009 CPS

Previous Next





Instruction Screen

Exam Hints/Tips



EXAMINATION HINTS

Plan your time so that you may complete the examination within the time allowance. The clock will change to **RED** when there are only five minutes left. If you have extra time, check your work.

Relax and work steadily.

IT IS TO YOUR ADVANTAGE TO ANSWER ALL QUESTIONS EVEN IF YOU ARE NOT SURE.

Copyright 2008-2009 CPS

Previous Next





Instruction Screen

Test Navigation



EXAMINATION HINTS

A scroll bar will help you navigate the test. There are three elements to the scroll bar:

* Directions [1] that tell you how to answer the questions that follow.

* Question numbers that display which questions have been answered. Questions that have been answered have a gray background [2], unanswered questions have a blue background [3].

You can also navigate through the test using the "Previous" [4] and the "Next" [5] buttons.

NOTE: When an answer is chosen for a question, the screen will automatically advance forward.



Copyright 2008-2009 CPS

Previous Next





Instruction Screen

Test Breakdown/Timing



CPS HUMAN RESOURCE SERVICES

ADVANCED CLERICAL

STOCK 3217

Section	Description	Questions
1	READING COMPREHENSION	30
2	SPELLING, PUNCTUATION, AND GRAMMAR	50
3	VOCABULARY	20
		Total 100

TIME ALLOWANCE: 2 HOURS (120 minutes), timer will display 119:59 on start.

Copyright 2008-2009 CPS

Previous Next





Instruction Screen

General Notes



NOTE

THIS EXAMINATION IS STANDARDIZED AND COPIES WILL NOT BE AVAILABLE FOR KEY INSPECTION OR REVIEW.

TERMINOLOGY IN CPS EXAMINATIONS IS NOT INTENDED TO DISCRIMINATE AGAINST ANY GENDER, INDIVIDUAL, OR GROUP OF PERSONS. PRONOUNS ARE USED IN A NEUTRAL, GENERIC SENSE AND SHOULD NOT BE CONSTRUED AS FAVORING ANY INDIVIDUAL OR GROUP OF PEOPLE.

THIS TEST IS THE PROPERTY OF CPS HUMAN RESOURCE SERVICES. DESTROYING, KEEPING, OR MAKING COPIES OF ANY MATERIAL CONTAINED IN THIS TEST IS A VIOLATION OF COPYRIGHT LAW.

COPYRIGHT MAY 2005

Copyright 2008-2009 CPS

Previous Next





Instruction Screen

Warning



Warning

This completes the instructions. Click "Next" to continue or "Previous" to go back. If you click "Next", the assessment will begin and you will not be able to return to the instructions.

Copyright 2008-2009 CPS

Previous Next





Candidate Directions



Time 119:53

SECTION 1

READING COMPREHENSION

DIRECTIONS: The following questions are designed to measure your ability to read and understand written material. Each reading passage is followed by a question about the material you have read. Base your answers only on the material you have read and not on any prior knowledge you may have.

Copyright 2008-2009 CPS



Next





Item Example



Time 102:55

In order to obtain a representative sample for research, subjects should be selected at random. Random selection means that all individuals in the population being studied have an equal chance of being selected to participate in the experiment. A truly random sample is formed in such a way that there is no bias in favor of selecting one member of the population over another. Also, the selection of one individual should not influence the selection of any other individual.

1. According to the passage,
- random selection is good for a select sampling.
 - when selecting randomly, everyone gets an equal chance of being selected.
 - in random sampling, you can pick the kind of people you want for research.
 - in a random sample, if you pick a certain type it should be taken into consideration.

Copyright 2008-2009 CPS



Previous

Next





Instruction Screen

End of Exam Warning (with time left)

You have reached the end of this assessment before time has expired. Click "Next" to continue or "Previous" to go back. If you click "Next", you will not be able to return to this assessment.



Previous



Next



Closing Screen



Thank you for taking part in this assessment.

We wish you the best in the selection process and continued success.


Please close this window by clicking on the "x" in the upper right hand corner of your screen.

Copyright 2008-2009 CPS








Scoring


Human Resource Services

CPS - Advanced Clerical 3217
SIER002 Advanced

Joseph L. McGee
jmcgee@emailaddress.net

2009-12-16 13:51

Factors	Score			
cpsadvancedclericalmoduleconstructgr	78.00			



Current

- **Stock Tests Available**

- 3101 – Entry Clerical
- 3102 – Entry Clerical
- 3127 – Entry Clerical
- 3217 – Advanced Clerical
- 3227 – Advanced Clerical
- 3295 – Administrative Assistant
- 3237 – Executive Secretary
- 5103 – Eligibility Worker
- 1041 – Entry-Level Law Enforcement Officer
- 1057 – Entry-Level Law Enforcement Officer

- **Next Up**

- Fire Candidate Prep Manual Form B – no oral passage
- 4610-A – Entry Legal Processing Clerk
- 5210 – Child Support Specialist
- 4326 – Account Clerk
- 4413 – Sr. Account Clerk



Example of Future Directions

- **Modules**
 - Separately or in combination
- **Training and Experience**
- **In-baskets**
 - Start with multiple choice move to video vignettes
- **Interviews**
- **Avatars**
- **Language Testing**



How about you?

Online Testing

For your agency:

- What do you see in the present?
- What do you see in the future?



Thank You

Questions??

howard@cps.ca.gov or
jwynn@cps.ca.gov





- Blank



References

Dineen, B.R. & Noe, R.A. (2009). Effects of customization on application decisions and applicant pool characteristics in a web-based recruitment context. *Journal of Applied Psychology, 94*, 224-234.

Dragow, F, Nye, C.D., Guo, J., & Tay. L. (2009). Cheating on proctored tests: The other side of the unproctored debate. *Industrial and Organizational Psychology, 2*, 46-48.

Equal Employment Opportunity Commission, Civil Service Commission, Department of Labor, & Department of Justice. (1978). Uniform Guidelines on employee selection procedures. *Federal Register, 43*, 38295-38309.

Fallow, S.S. & Solomonson, A.L. (2009) 2009 Global Assessment Trends Report. Retrieved April 21, 2009, from www.previsor.com/resources/gat/2009

Foster, D. (2009). Secure, online, high-stakes testing: Science fiction or business reality? *Industrial and Organizational Psychology, 2*, 31-34.

Gibby, R.E., Ispas, D., McCloy, R.A., & Biga, A. (2009). Moving beyond the challenges to make unproctored internet testing a reality. *Industrial and Organizational Psychology, 2*, 64-68.

Hense, R., Golden, J.H., & Burnett, J. (2009). Making the case for unproctored internet testing: Do the rewards outweigh the risks? *Industrial and Organizational Psychology, 2*, 20-23.

Kaminski, K.A. & Hemingway, M.A. (2009). To proctor or not to proctor? Balancing business needs with validity in online assessment. *Industrial and Organizational Psychology, 2*, 24-26.

Kim, S. & O'Connor, J.G. (2009). Assessing Electronic Recruitment Implementation in State Governments: Issues and Challenges. *Public Personnel Management, 38*(1), 47-66.



References

- Lievens, F. & Harris, M.M. (2003). Research on Internet recruitment and testing: Current status and future directions. In C.L. Cooper & I.T. Robertson (Eds.), *International review of industrial and organizational psychology* (Vol.18). New York: Wiley.
- McDaniel, M.A., Schmidt, F.L., & Hunter, J.E. (1988). A meta-analysis of the validity of methods for rating training and experience in personnel selection. *Personnel Psychology*, 41, 283-314.
- Meade, A.W., Michels, L.C., & Lautenschlager, G.J. (2007). Are internet and paper-and-pencil personality tests truly comparable? An experimental design measurement invariance study. *Organizational Research Methods*, 10, 322-345.
- Mooney, J. (2002) Pre-employment testing on the Internet: Put candidates a click away and hire at modem speed. *Public Personnel Management*, 31(1), 41-51
- Naglieri, J.A., Drasgow, F., Schmit, M., Handler, L., Prifitera, A., Margolis, A., & Velasquez, R. (2004). Psychological testing on the internet: New problems, old issues. *American Psychologist*, 59, 150-162.
- Nye, C.D., Do, B.R., Drasgow, F., & Fine, S. (2007). Two-step testing in employee selection: Is score inflation a problem? *International Journal of Selection and Assessment*, 16, 112-120.
- Pearlman, K. (2009). Unproctored internet testing: Practical, legal, and ethical concerns. *Industrial and Organizational Psychology*, 2, 14-19.
- Piotrowski, C., Armstrong, T. (2006). Current recruitment and selection practices: A national survey of Fortune 1000 Firms, *North American Journal of Psychology*, 18(3), 489-496.
- Potosky, D. & Bobko, P. (2004). Selection testing via the internet: Practical considerations and exploratory empirical findings. *Personnel Psychology*, 57, 1003-1034.



References

- Reynolds, D.H., Wasko, L.E., Sinar, E.F., Raymark, P.H., & Jones, J.A. (2009). UIT or not UIT? That is not the only question. *Industrial and Organizational Psychology*, 2, 52-57.
- Russell, D.P. (2007). Recruiting and staffing in the electronic age: A research-based perspective. *Consulting Psychology Journal: Practice and Research*, 59, 91-101.
- Rynes, S.L., Bretz, R.D., & Gerhart, B. (1991). The importance of recruitment in job choice: A different way of looking. *Personnel Psychology*, 33, 529-542.
- Schmidt, F.L. & Hunter, J.E. (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings. *Psychological Bulletin*, 124, 262-274.
- Sinar, E.F., Reynolds, D.H., & Paquet, S.L. (2003). Nothing but 'Net? Corporate image and web-based testing. *International Journal of Selection and Assessment*, 11, 150-157.
- Society for Industrial and Organizational Psychology. (2003). *Principles for the validation and use of personnel selection procedures* (4th ed.). Bowling Green, OH: Author.
- Stone, D.L., Lukaszewski, K.M., & Isenhour, L.C. (2005). E-Recruiting: Online strategies for attracting talent. In Gueutal, H. & Stone, D. (Eds.), *A brave new world of e-HR*. Mahway, NJ: Erlbaum.
- Terpstra, D.E. & Rozell, E.J. (1997). Why some potentially effective staffing practices are seldom used. *Public Personnel Management*, 26, 483-495.
- Tippins, N.T. (2009). Internet alternatives to traditional proctored testing: Where are we now? *Industrial and Organizational Psychology*, 2, 2-10.



- **Annual Base Fee**-----\$175.00
- Fees for on-line testing in a true tiered scheduled**:
- 1 - 25 Candidates (per candidate)-----\$25.00
- 26 - 75 Candidates (per candidate)-----\$22.50
- 76 + Candidates (per candidate)-----\$20.00
- Non-specified special services – Call for Details