



# Factors Influencing Applicant Performance When Retaking Employment Exams

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**Michael D. Blair**  
**John M. Ford**





# Retest or Not Retest?

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- To retest or not retest? That is the question.
  
  
  
  
  
  
  
  
  
  
  
  
  
- Or is it? Do you really have a choice?



# Obligation to Retest

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- Uniform Guidelines on Employee Selection Procedures (1978)
  - Section 12: Retesting of applicants: “Users should provide a reasonable opportunity for retesting and reconsideration.”
- Standards for Educational and Psychological Testing (1999)
  - Retest opportunities should be provided for promotion, graduation, admission, licensing, or certification decisions



# Why Is There An Obligation to Retest?

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- Two rationales underlie the professional endorsement for retesting (Lievens, Buyse, & Sackett, 2005)
  - “Retesting is warranted due to the possibility that the initial assessment was in error...”
  - Retesting is warranted because there “is the possibility that candidates have improved their standing on the construct of interest...”
- In addition, our society has an expectation that individuals will have the opportunity to “try again”. Not allowing individuals to retest would be construed as unfair.



# The Issue is Not to Retest

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- The focus should be on the effect and impact of retesting in order to answer critical questions regarding retesting
  - Do re-takers score higher on the retest?
  - What is a reasonable test-retest interval?
  - How many retests should be allowed?
  - Which scores best reflect the true score?
  - Is there a validity reduction with retesting?
  - Do retest takers differ from non-retest takers?
  - Are certain types of tests more prone to retest effects than others?
  - What are the potential benefits to organizations of retesting?



# Published Research on Retesting, Coaching, and Practice Effects

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# A Brief Literature Review

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- Most of the research and published literature is in the educational arena and centers around coaching and practice effects
  - Aptitude, achievement, and ability tests
- To date only two articles have been published that focus on retesting in employment settings
  - Hausknecht, Trevor, & Farr, 2002
    - Police officer entrance examination
  - Lievens, Buyse, & Sackett, 2005
    - Used medical school admissions exam as a proxy for employment setting



# Coaching Effects

## Aptitude & Achievement Tests

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- Meta-analysis on aptitude test coaching (Kulik, Bangert-Drowns, & Kulik (1984)
  - Raised SAT scores an average of 0.15 *SD*
  - Raised other aptitude and intelligence test scores an average of 0.43 *SD*
- Coaching raised scores on the revised SAT by 0.10 *SD* and 0.20 *SD* on the verbal and math sections (Powers & Rock, 1999)
- SAT and ACT scores increased following participation in test preparation activities (Briggs, 2001)
- Attendees of test preparation programs for selection settings scored no better on ability tests than non-attendees (Ryan, Ployhart, Gregarus, & Schmidt, 1998)





# Practice Effects

## Aptitude & Achievement Tests

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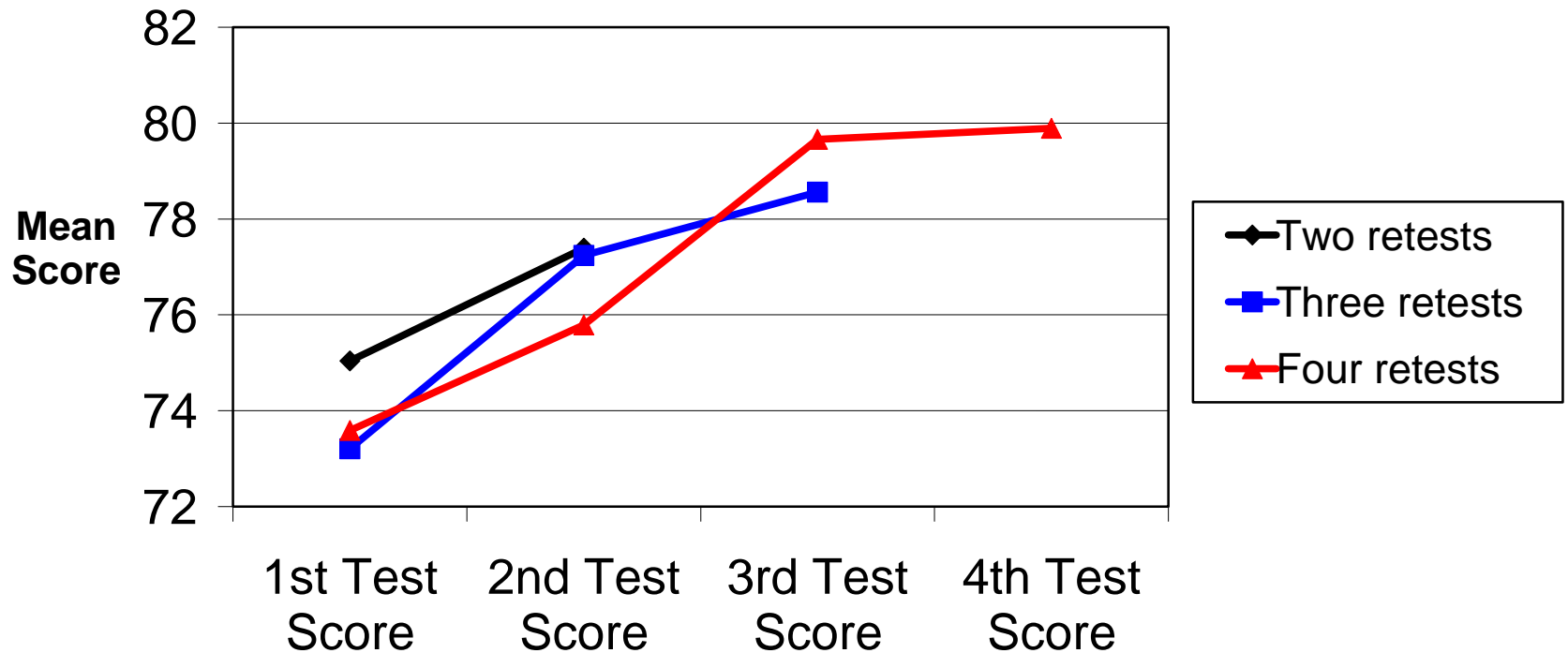
- Test scores increase in the second administration of achievement and aptitude tests (Kulik, Kulik, & Bangert, 1984)
  - Test score increases for identical tests = 0.42 *SD*
  - Test score increases for parallel forms = 0.23 *SD*
- Multiple retests result in larger practice effects for achievement and aptitude tests (Kulik, Kulik, & Bangert, 1984)
  - First to second = 0.42 *SD* score increase
  - First to third = 0.70 *SD* score increase
  - First to fourth = 0.96 *SD* score increase



# Selection Research

## Police Entrance Exam Test Scores

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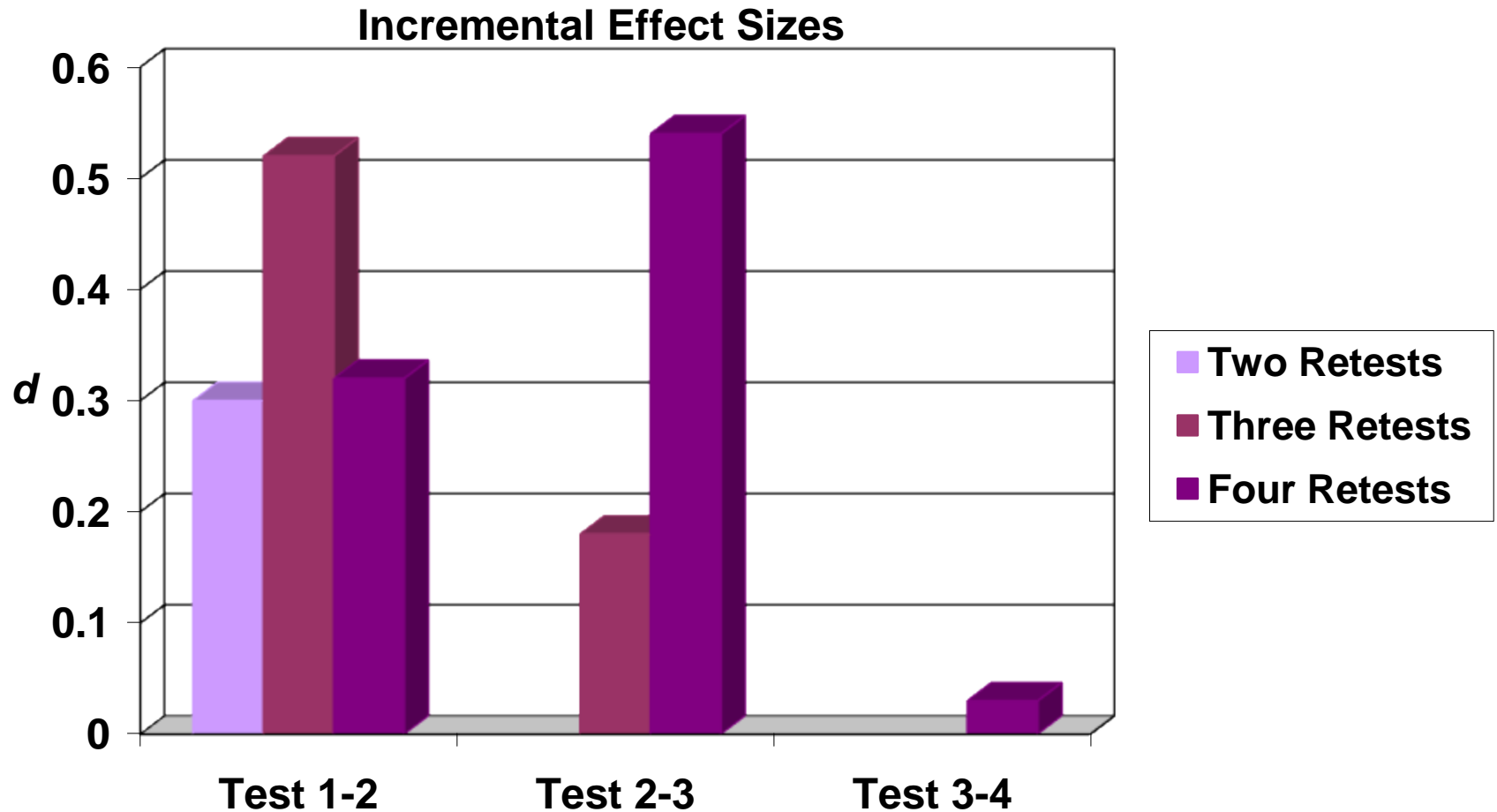


Adapted from Hausknecht, Trevor, & Farr (2002)



# Selection Research

## Police Entrance Exam Retest Effect Sizes

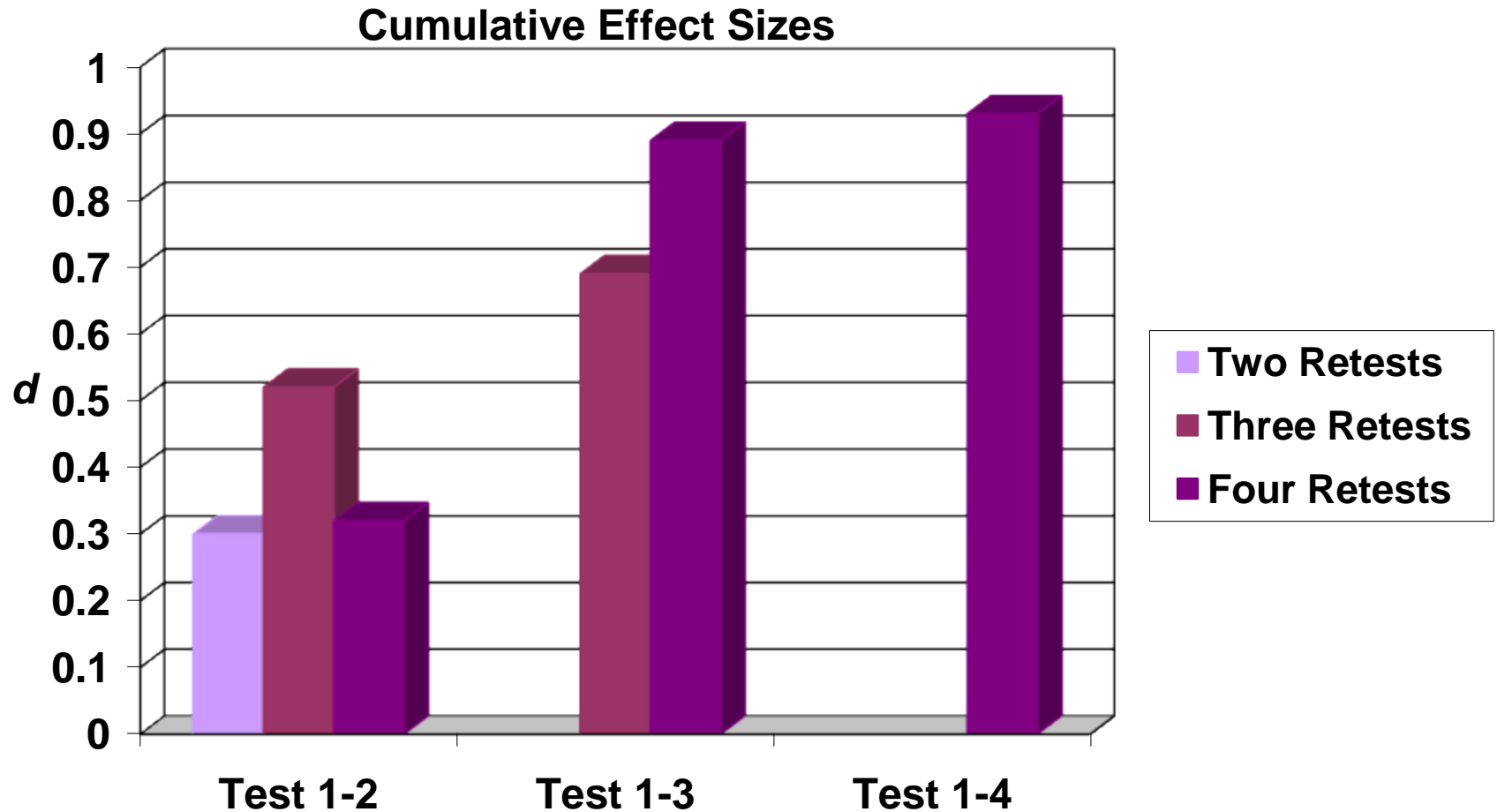


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# Selection Research

## Police Entrance Exam Retest Effect Sizes

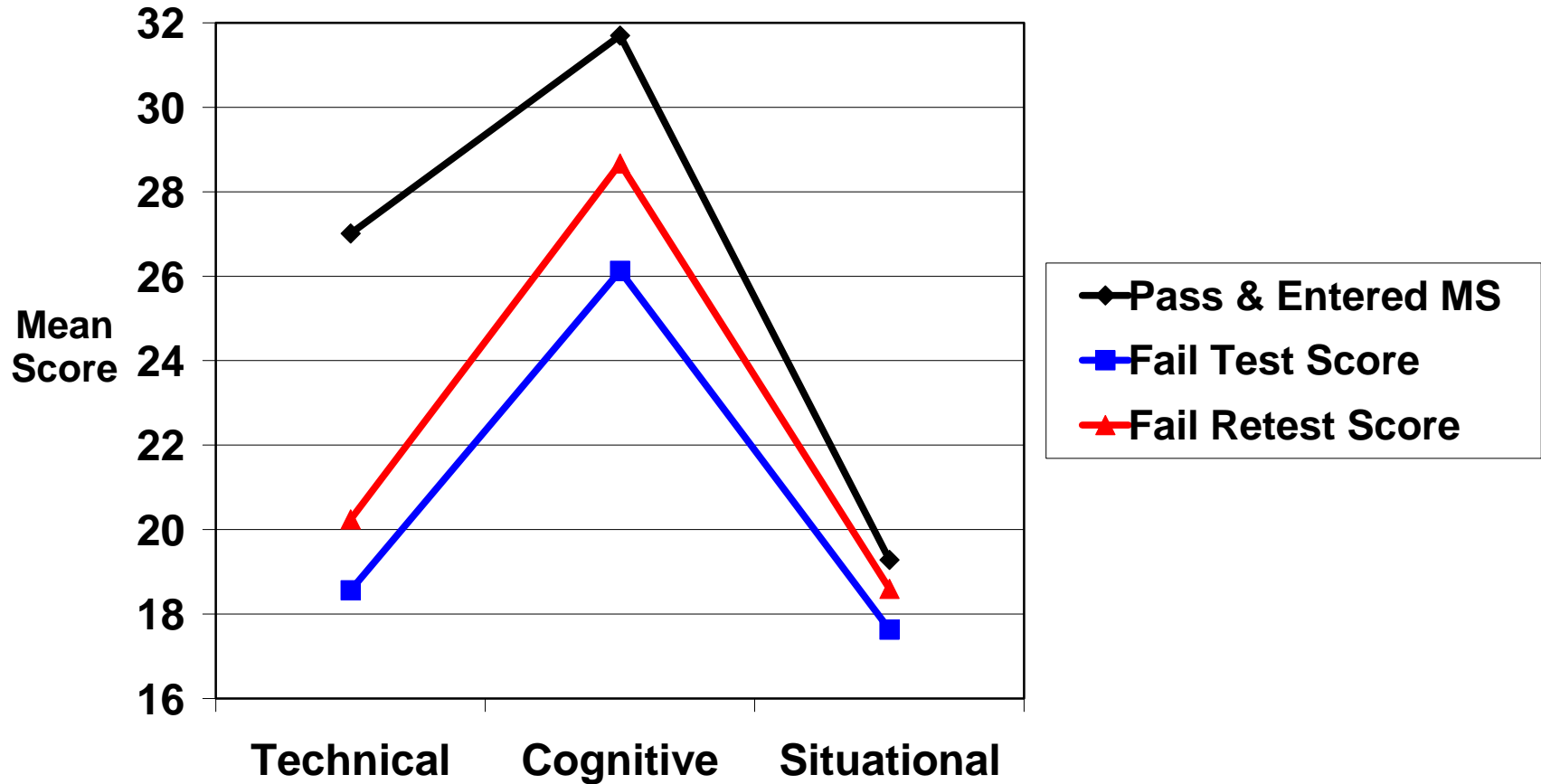


Adapted from Hausknecht, Trevor, & Farr (2002)



# Selection Research

## Medical Entrance Exam Test Scores

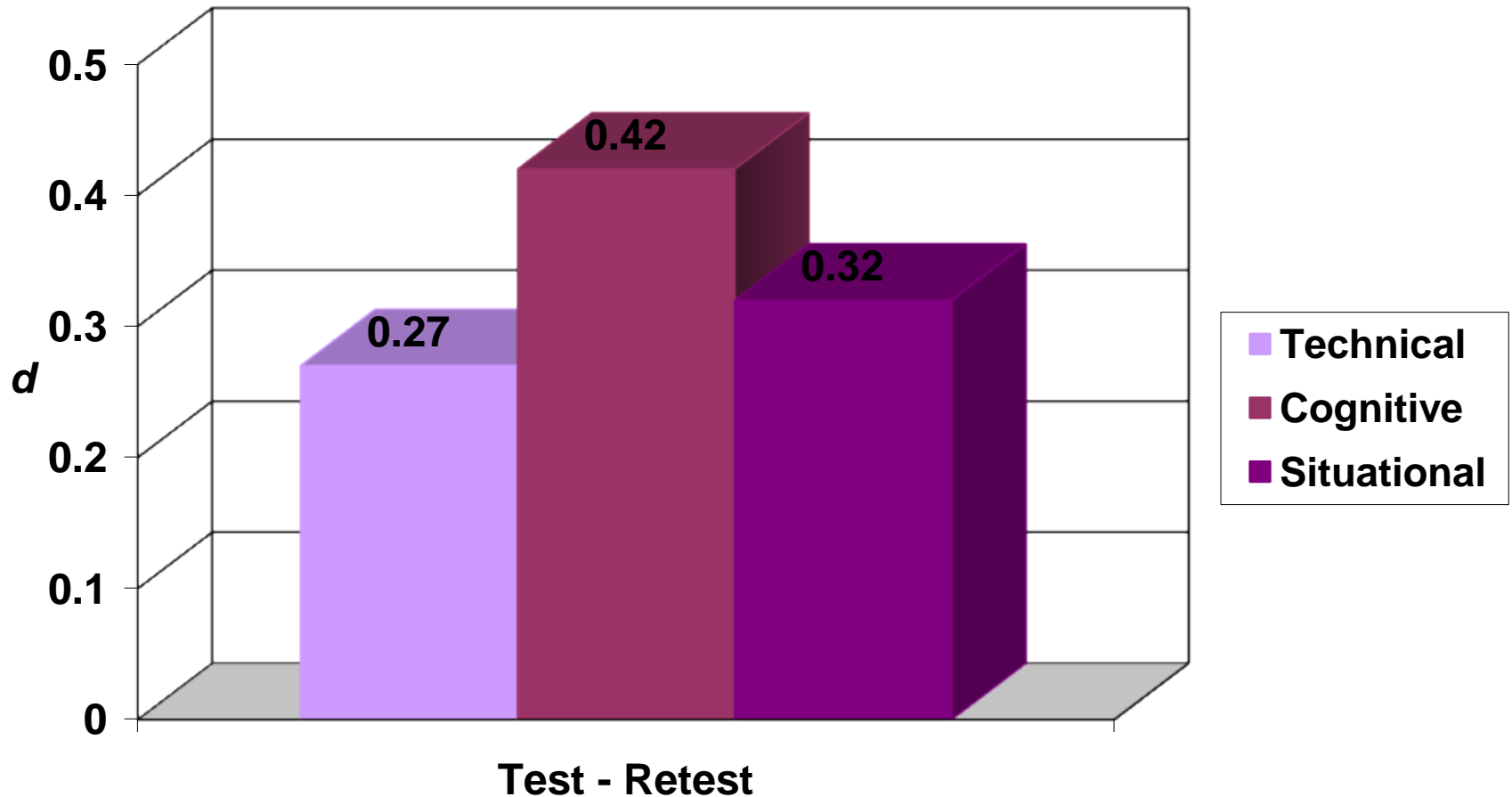


Adapted from Lievens, Buyse, & Sackett (2005)



# Selection Research

## Medical Entrance Exam Retest Effect Sizes



Adapted from Lievens, Buyse, & Sackett (2005)



# Unpublished Research on Retesting Effects Based on the *CWH Selection Solutions* Firefighter Written Examination



# *Selection Solutions* Firefighter Written Test

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- First administration in 1997
- Administered to over 65,000 applicants
- Database contains 10,000+ repeat test takers
  - Approximately 3400 with 3 retests
  - Approximately 1300 with 4 retests
  - Approximately 500 with 5 retests
- Repeat test taker sample includes:
  - Applicants who have taken the up to 10 times
  - Applicants who have taken the test anywhere from one month after their initial session to up to nine years after their initial session





# Characteristics of the *Selection Solutions Test*

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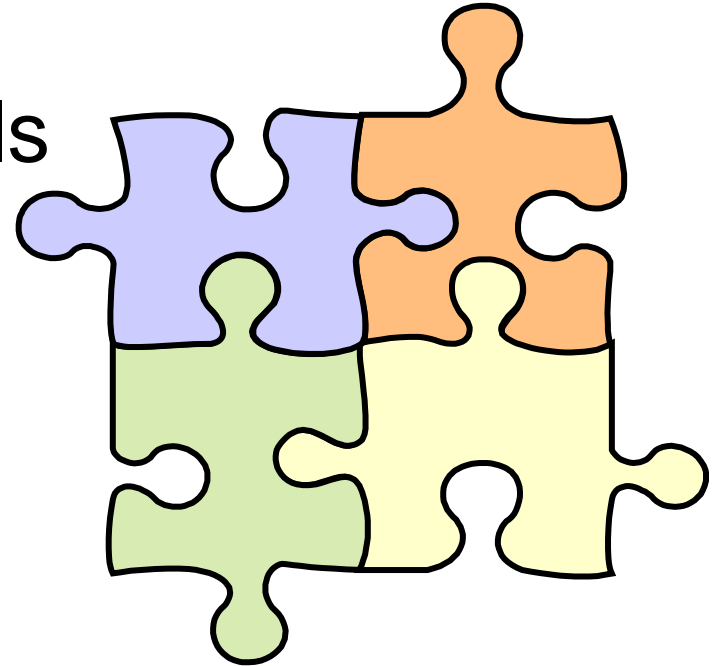
- Not an ability or achievement test
- Uses situational items
- Uses practical (applied) based items
- Allows candidates to draw from their life experiences
- Measures dimensions that change over time as well as dimensions that remain fairly stable over time.



# Components Included in the *Selection Solutions Test*

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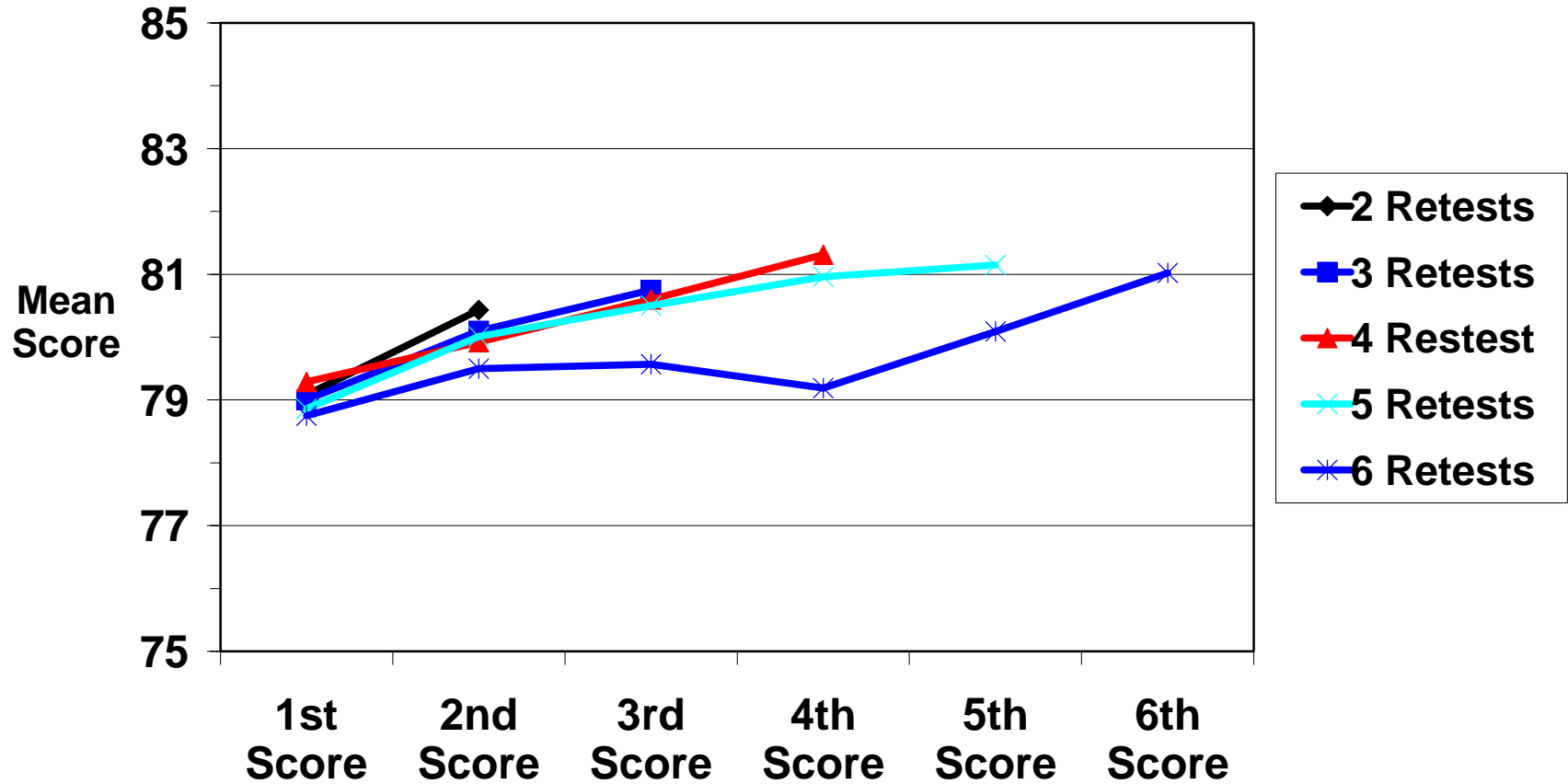
- Basic Educational Skills
- Practical Skills
- Interpersonal Skills
- Self Awareness Skills





# Selection Solutions

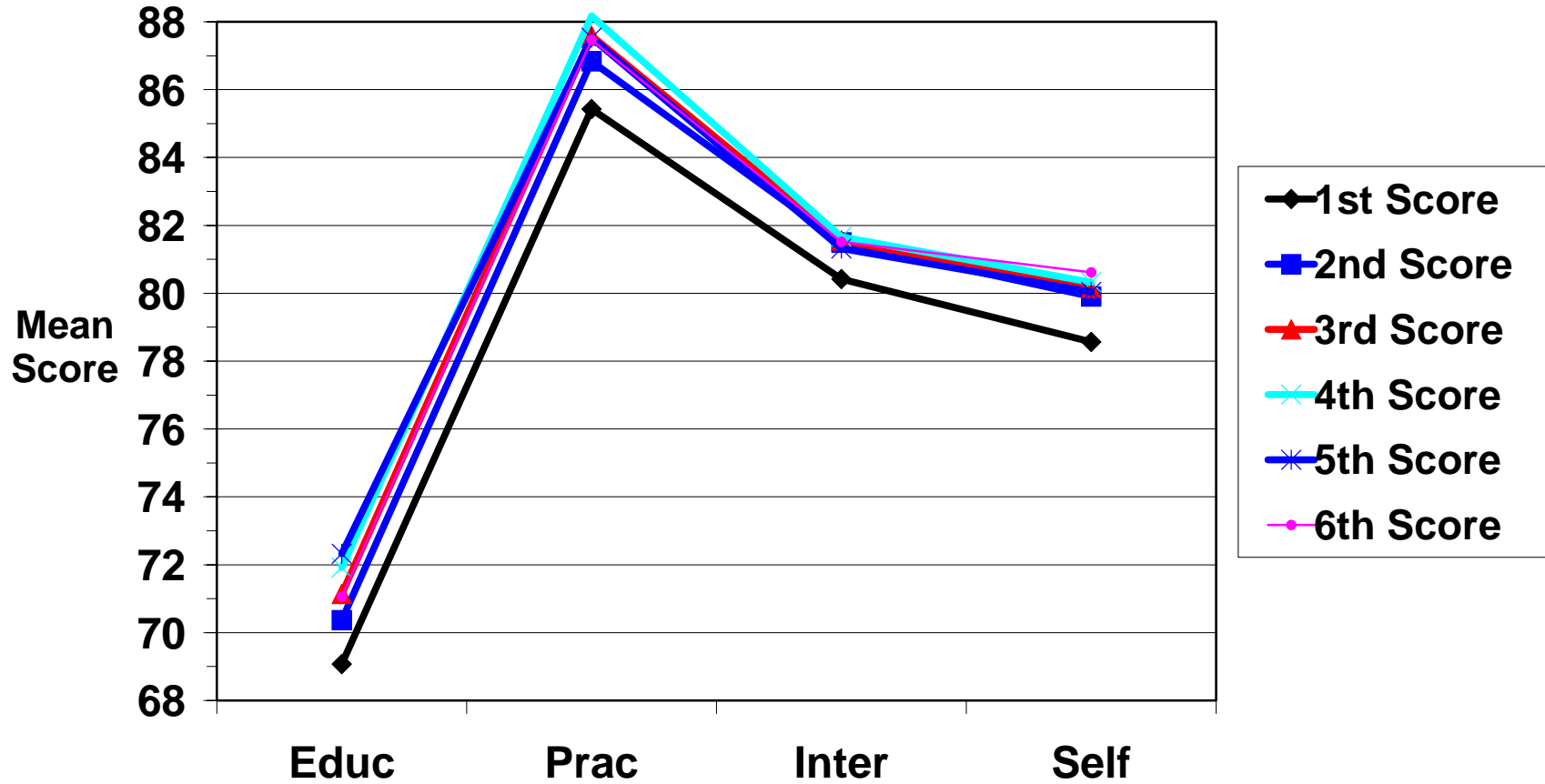
## Firefighter Exam Test Scores





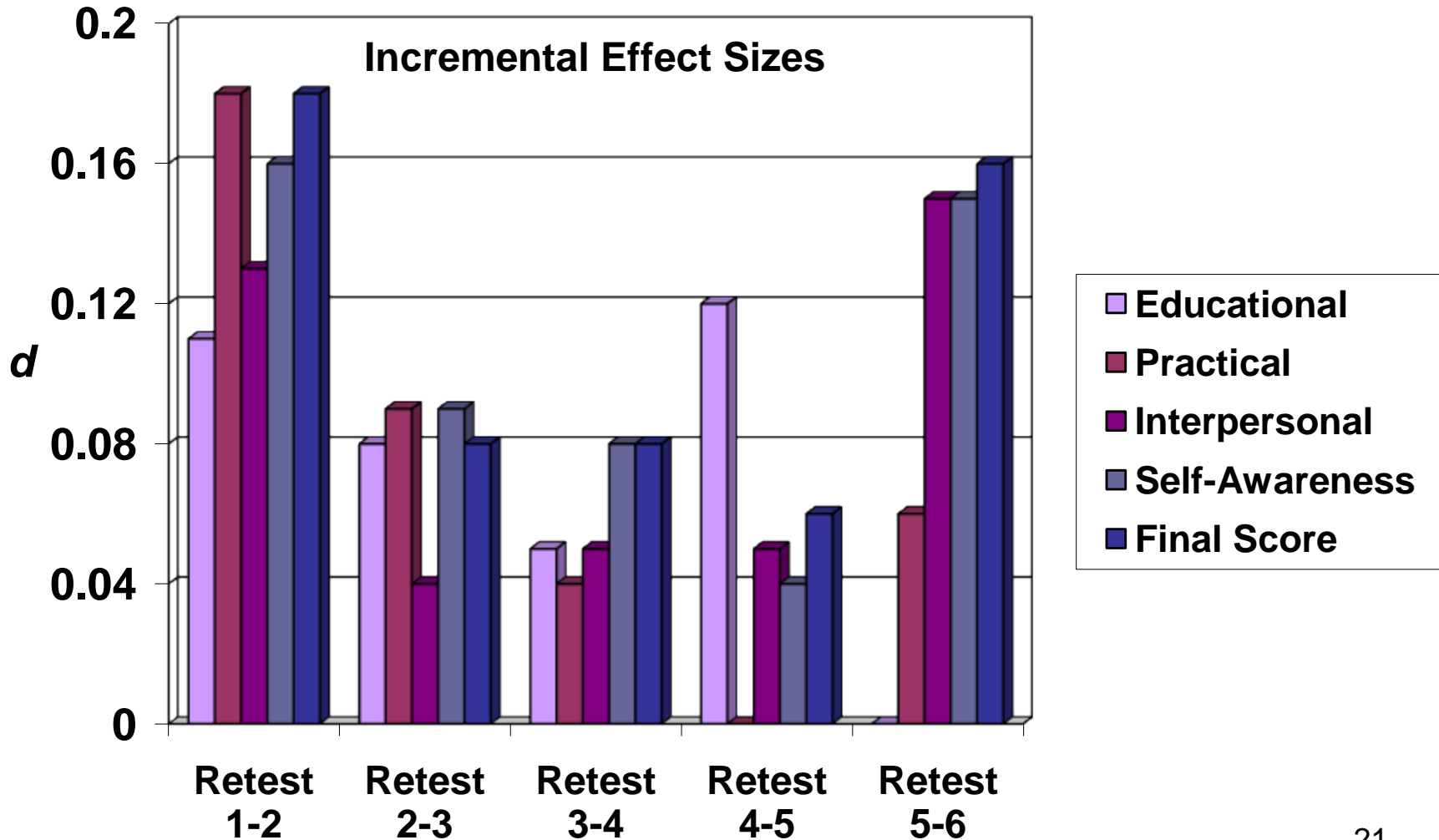
# Selection Solutions

## Firefighter Exam Test Scores



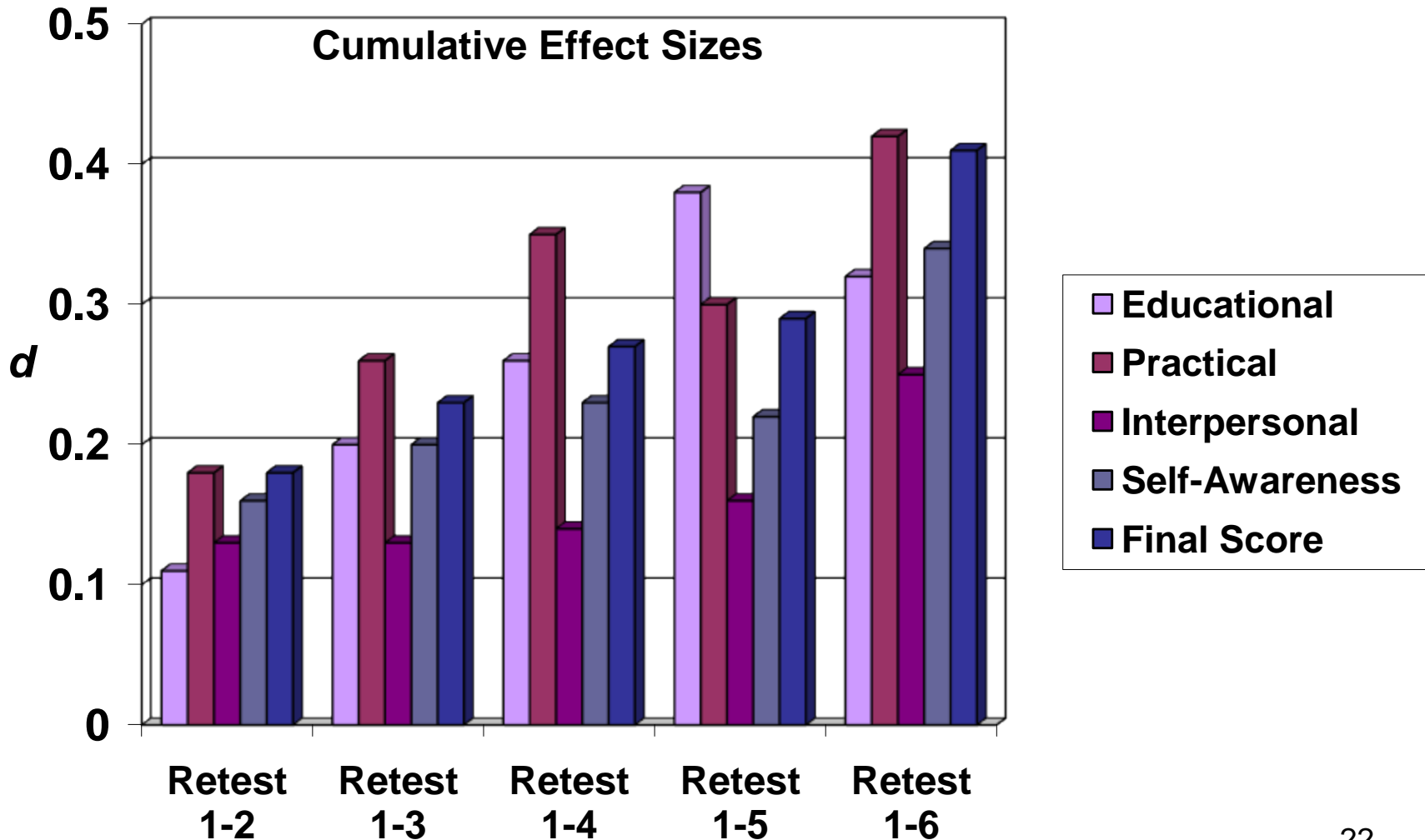


# Selection Solutions Test-Retest Effect for Multiple Retests





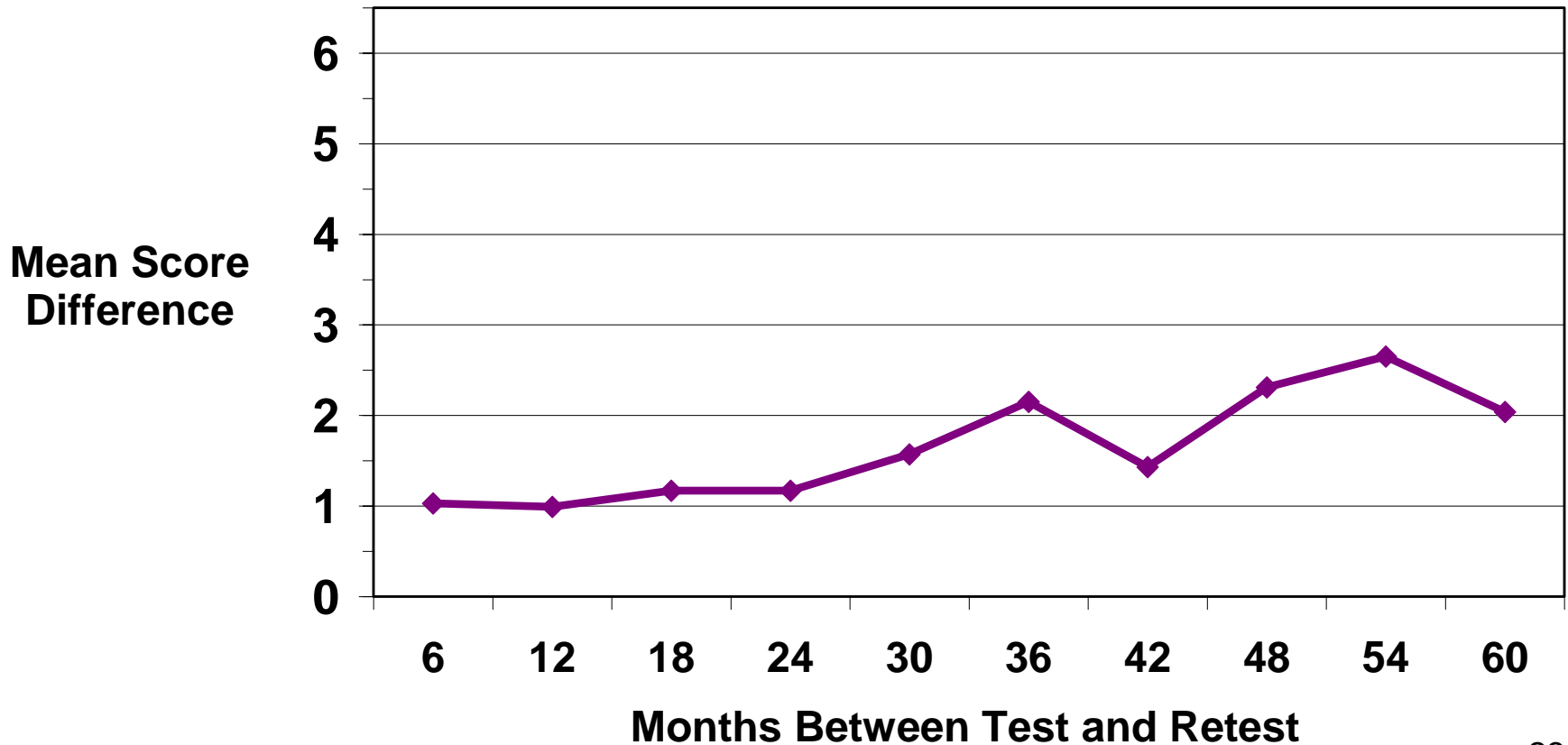
# Selection Solutions Test-Retest Effect for Multiple Retests





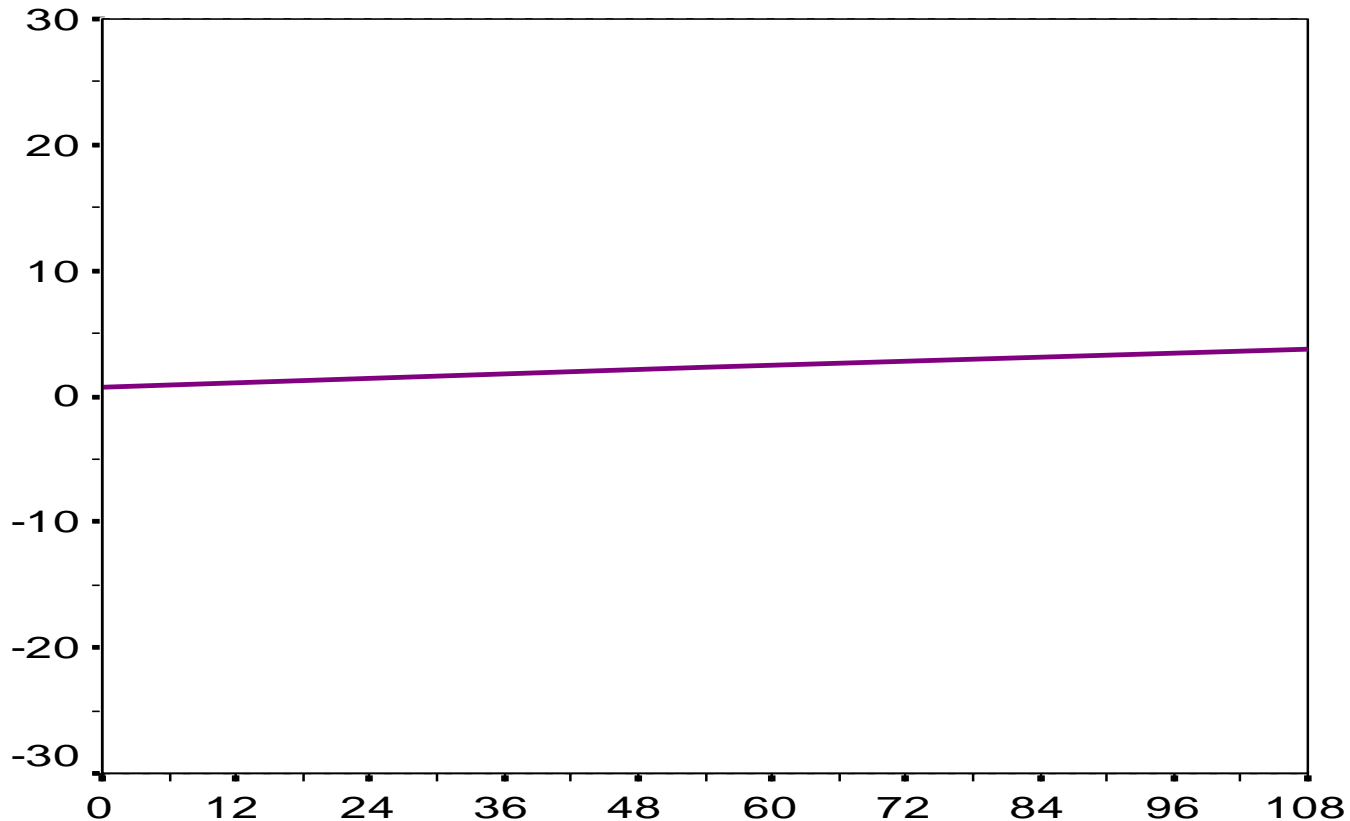
# *Selection Solutions* Test-Retest Mean Score Differences Over Time

## Overall Score





# *Selection Solutions* Test-Retest Raw Score Differences Over Time



$N = 10389$

$r = .06$

Months Between Test and Retest





# Implications (and Inferences) of Retesting

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# Potential Organizational Disadvantages When Candidates Re-Take Tests

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- Practice effects appear to be consistent for the first retest
  - First time re-testers can enhance their “standing” relative to candidates taking the test for the first time
- When using cognitive ability tests, the scores increase incrementally with each retest
  - Subsequent scores may not be a true reflection on the candidate’s cognitive ability
- Test validity may be lower for retests
  - Academy training performance when hired after one test  $r = 0.36$
  - Academy training performance when hired after retest  $r = 0.24$
  - Retest scores had lower correlations with GPA



# Potential Organizational Advantages When Candidates Re-Take Tests

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- Retesting shows persistence and motivation
- Retesting positively correlated with performance
  - Each retest was associated with a 12% SD increase in police academy test scores
- Retesting positively correlated with job retention
  - As police entry retests increased, turnover decreased
- Scores on dimensions that are related to life experience and educational skills can improve over time
  - Retesting allows candidates to demonstrate this improvement
- Scores on dimensions that are related to traits that are stable over time do not change with repeated retesting



# References & Readings

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