



Test Taking Style: Is Caution a Personality Variable in Ability Testing?

Objectives

This poster explores the construct validity of new Accuracy, Speed and Caution Test Taking Style variables developed by Saville Consulting. The variables are correlated with their counterparts calculated on a different set of ability tests and with two sets of personality variables. The poster intends to guide towards a better understanding of speed-accuracy trade-off issues in testing and at work.

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Introduction

Aptitude tests are usually very time pressured with unclear advice to candidates on how to balance speed and accuracy. In the development of Saville Consulting aptitude tests time limits were set to increase the typical completion rates, and candidates are encouraged to work at high speed to reflect the scoring where the Total is simply the sum of correct answers.

In addition the new tests feature three Test Taking Style scores based on the SPACES model of Kurz (2000) where Accuracy is the proportion of correct answers, Speed the proportion of test questions answered and Caution the difference between Accuracy and Speed.

The practical significance of the speed-accuracy trade-off issue can be illustrated through the profile chart on Numerical Professional Analysis for a hypothetical candidate called 'Cathy Cautious'.

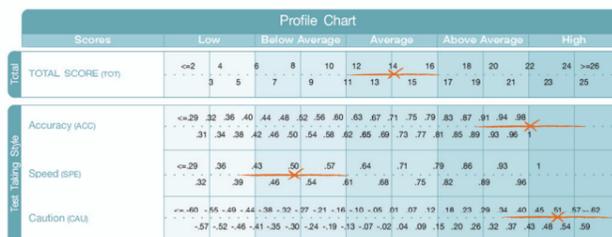


Figure 1: Numerical Analysis Profile Cathy Cautious

Cathy answered only 14 questions but got them all correct. The Total score of 14 put her in the Average band. Speed was Below Average, Accuracy High and Caution accordingly also High. In the test situation Cathy exhibited a high degree of caution. If she had taken risks and answered the remaining 14 questions randomly she may have picked up another 3 points reaching the Above Average band.

Kurz et al (2006) reported that Speed and Accuracy were independent on the Professional Aptitudes standardisation sample (N=300) while Total and Caution were slightly positively correlated.

The purpose of this poster is to explore whether the caution measurement generalises to other tests, and correlates with trait personality variables.

Study 1

Lishman (2005) conducted a classic construct validity study on N=98 students and professionals with counterbalanced order design. Total scores for Professional Verbal, Numerical and Diagrammatic Analysis correlated satisfactorily with comparable SHL tests VMG6 (.60), NMG6 (.63) and DIT5 (.65). Analysis of Test Taking Style variables revealed comparable levels of construct validity as Accuracy correlated .66, .65 and .60, Speed .62, .64 and .63, and Caution .65, .70 and .60 respectively. The results suggest that the new Test Taking Style variables generalise across different tests.

Study 2

A group of N=100 Senior Civil Servants completed Professional Verbal and Numerical Analysis alongside the NEO PIR 'Big 5' personality questionnaire.

NEO Neuroticism was significantly correlated with Verbal Accuracy (.19) and Caution (.17) and Numerical Total Score (.23) and Accuracy (.20).

NEO Extraversion was significantly negatively related with Verbal Total Scores (-.21), Accuracy (-.34) and Caution (-.36).

NEO Agreeableness correlated significantly negatively with Numerical Total Scores (-.18) and Speed (-.17).

NEO Conscientiousness correlated significantly negatively with Verbal Accuracy (-.27) and Caution (-.34).

NEO Openness showed no significant correlations with any aptitude test scores.

Study 3

N=113 students completed Professional Aptitudes as well as the Saville Consulting Wave™ Professional Styles questionnaire (see Maclver et al, 2006).

The Rational dimension correlated highly significantly (around .30) with Total, Accuracy and Caution scores on Numerical and Diagrammatic Analysis.

Inventive correlated significantly (around .25) with Numerical and Diagrammatic Accuracy.

Organised and Reliable correlated significantly negatively (around -.30) with Total, Accuracy and Caution on Verbal and Numerical Analysis.

Discussion

The correlations of Test Taking Styles variables across sets of tests were substantially higher than the .5-.6 values found by Kurz et al (2006) where ceiling effects triggered by high completion rates may have restricted correlations. The data here suggests that Caution may be just as generalisable construct as Intelligence or 'g'.

Both personality construct validation studies show, somewhat counter-intuitively, negative correlations between Conscientiousness scales and the Test Taking Style variables Accuracy and Caution. Positive correlations between Rational and Inventive dimensions of Professional Styles with some Accuracy scores is fully in line with expectations. In the NEO study Extraversion and Agreeableness tended to correlate negatively with test performance. Interestingly Neuroticism was positively correlated with Accuracy related scores.

Conclusions

The correlations across related tests show excellent measurement qualities of the new variables even with tests that have not been designed with this advance in mind. The correlation pattern between the variables and self-report personality questionnaires however is complex. For now we can only conclude that Caution is an important situational variable in ability testing. Further research is warranted to explore the relationship between Test Taking Variables and personality traits and their value in predicting criteria.

References

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