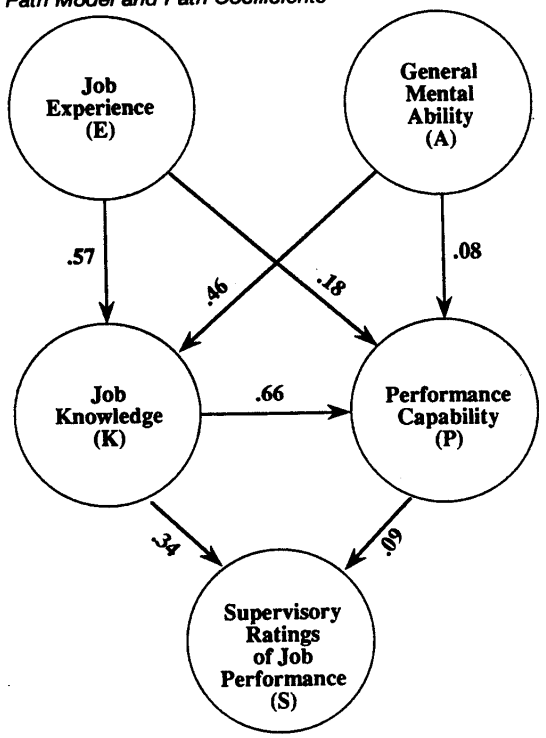
Schmidt, F. L. (1992). What do data really mean? Research findings, meta-analysis, and cumulative knowledge in psychology. *Ameri*
Psychologist, 47, 1173-1181.

Figure 4
Path Model and Path Coefficients



The commonly held belief that research progress will be made if only we "let the data speak" is sadly erroneous. Because of the effects of artifacts such as sampling error and measurement error, it would be more accurate to say that data come to us encrypted, and to understand their meaning we must first break the code. Doing this requires meta-analysis. Therefore any individual study must be considered only a single data point to be contributed to a future meta-analysis. Thus the scientific status and value of the individual study is necessarily reduced.

The result has been a shift of the focus of scientific discovery from the individual primary study to the meta-analysis, creating a major change in the relative status of reviews. Journals that formerly published only primary studies and refused to publish reviews are now publishing meta-analytic reviews in large numbers. In the past, research reviews were based on the narrative–subjective method, and they had limited status and gained little credit for one in academic raises or promotions. The rewards went to those who did primary research. Perhaps this was appropriate because it can be seen in retrospect that such reviews often contributed little to cumulative knowledge (Glass et al., 1981; Hedges & Olkin, 1985). Not only is this no longer the case, but there has been a far more important development. Today, many discoveries and advances in cumulative knowledge are being made not by those who do primary research studies but by those who use meta-analysis to discover the latent meaning of existing research literatures. It is possible for a behavioral or social scientist today with the needed training and skills to make major original discoveries and contributions without conducting primary research studies—simply by mining the information in accumulated research literatures. This process is well under way today.

Table 2
Original Correlation Matrix, Correlation Matrix Reproduced From Path Model, and the Difference Matrix

Variable	A	K	P	S	E
Original matrix					
Ability (A)	—	0.46	0.38	0.16	0.00
Job knowledge (K)	0.46	—	0.80	0.42	0.57
Performance capability (P)	0.38	0.80	—	0.37	0.56
Supervisory ratings (S)	0.16	0.42	0.37	—	0.24
Job experience (E)	0.00	0.57	0.56	0.24	—
Reproduced matrix					
Ability (A)	—	0.46	0.38	0.19	0.00
Job knowledge (K)	0.46	—	0.80	0.41	0.57
Performance capability (P)	0.38	0.80	—	0.36	0.56
Supervisory ratings (S)	0.19	0.41	0.36	—	0.24
Job experience (E)	0.00	0.57	0.56	0.24	—
Difference matrix (original minus reproduced)					
Ability (A)	—	0.00	0.00	−0.03	0.00
Job knowledge (K)	0.00	—	0.00	0.01	0.00
Performance capability (P)	0.00	0.00	—	0.01	0.00
Supervisory ratings (S)	−0.03	0.01	0.01	—	0.00
Job experience (E)	0.00	0.00	0.00	0.00	—