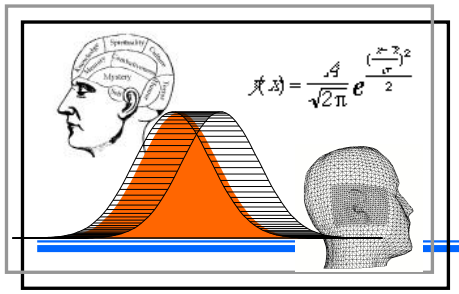

Intelligence and School Achievement

A Lesson from Forrest Gump Regarding Appropriate Expectations for Students with Cognitive Disabilities

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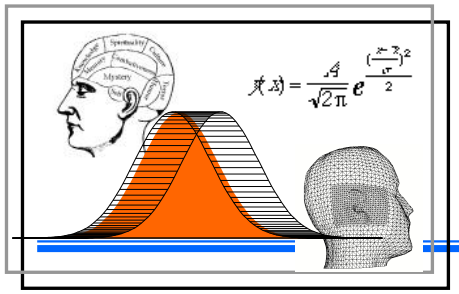
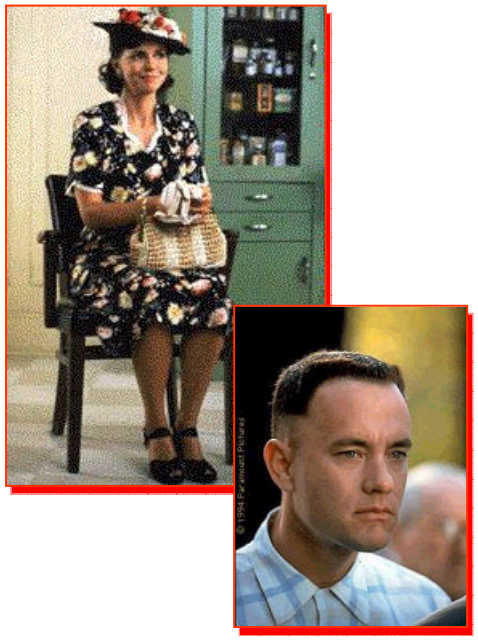


Principal: Your boy's... different, Miz Gump. His IQ's 75.

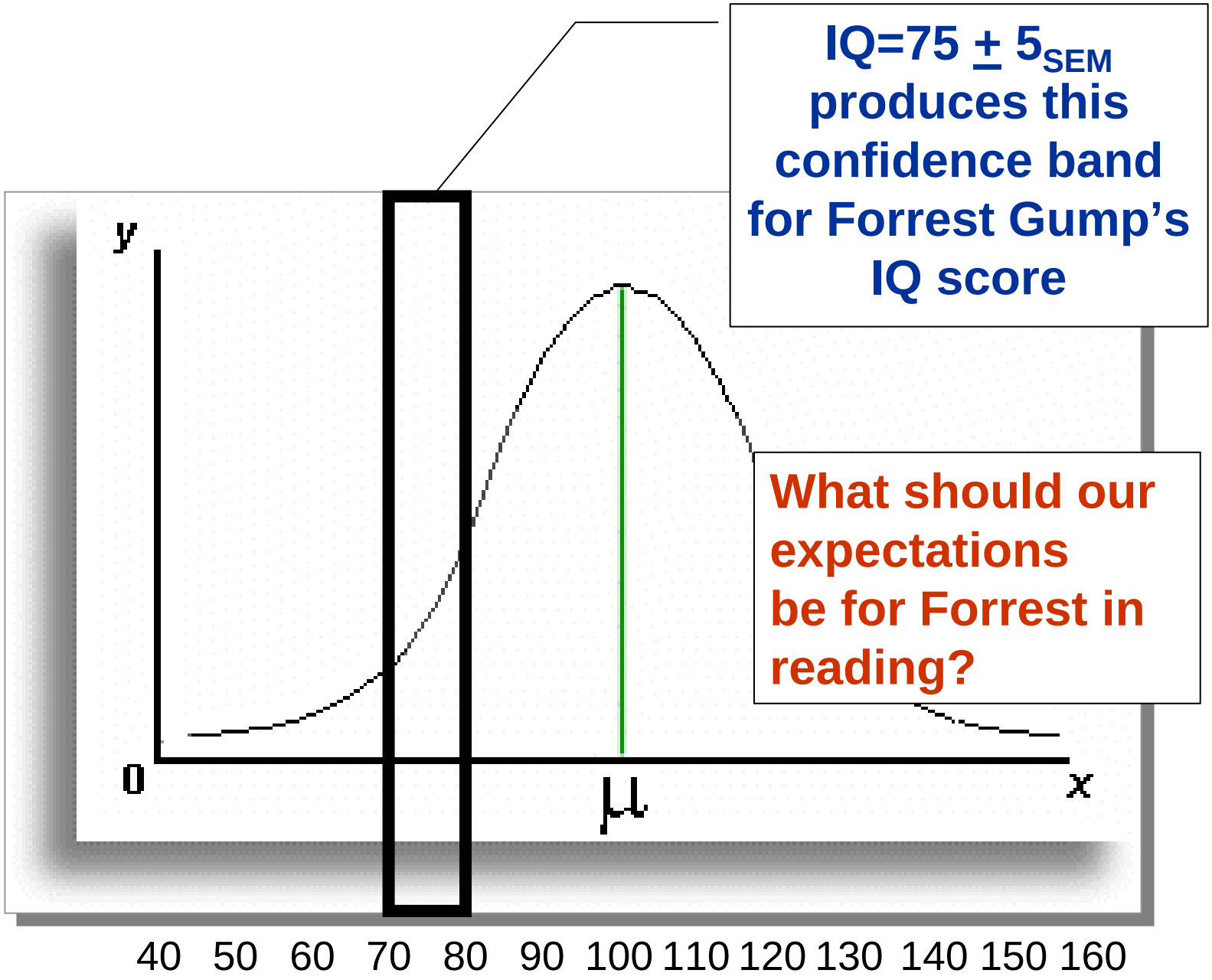
Mrs. Gump: Well, we're all different, Mr. Hancock. He might be a bit on the slow side.

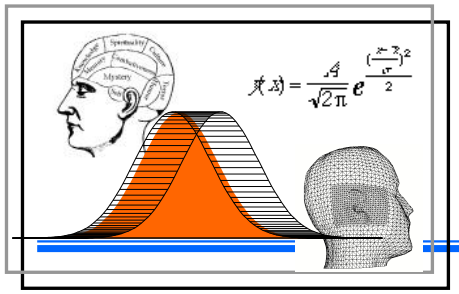
He's not going to a special school to retread tires!



As we all know, Forrest accomplished a lot --- much more than his IQ score would have suggested. How can this be ?

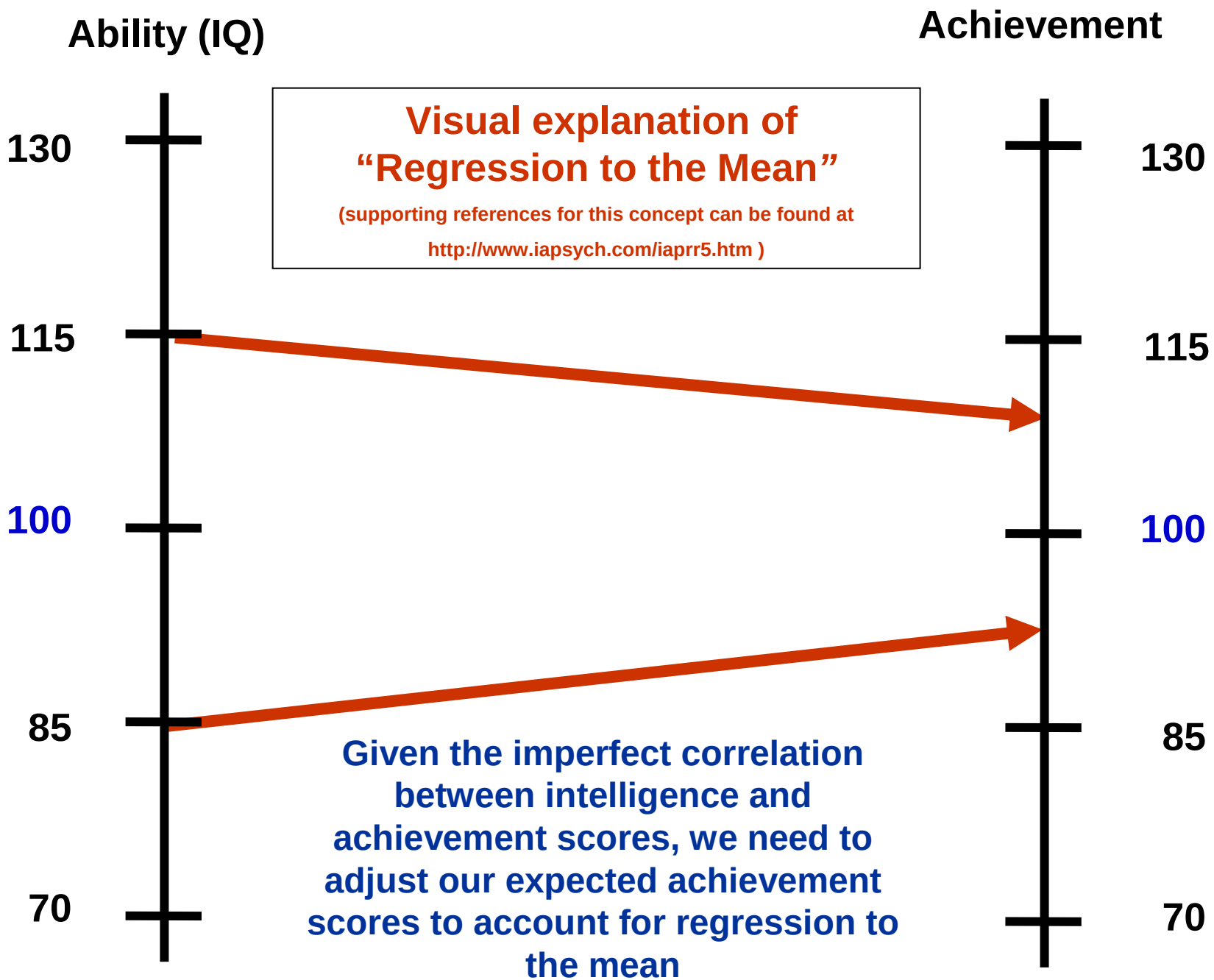
“Sometimes there just aren’t enough rocks”

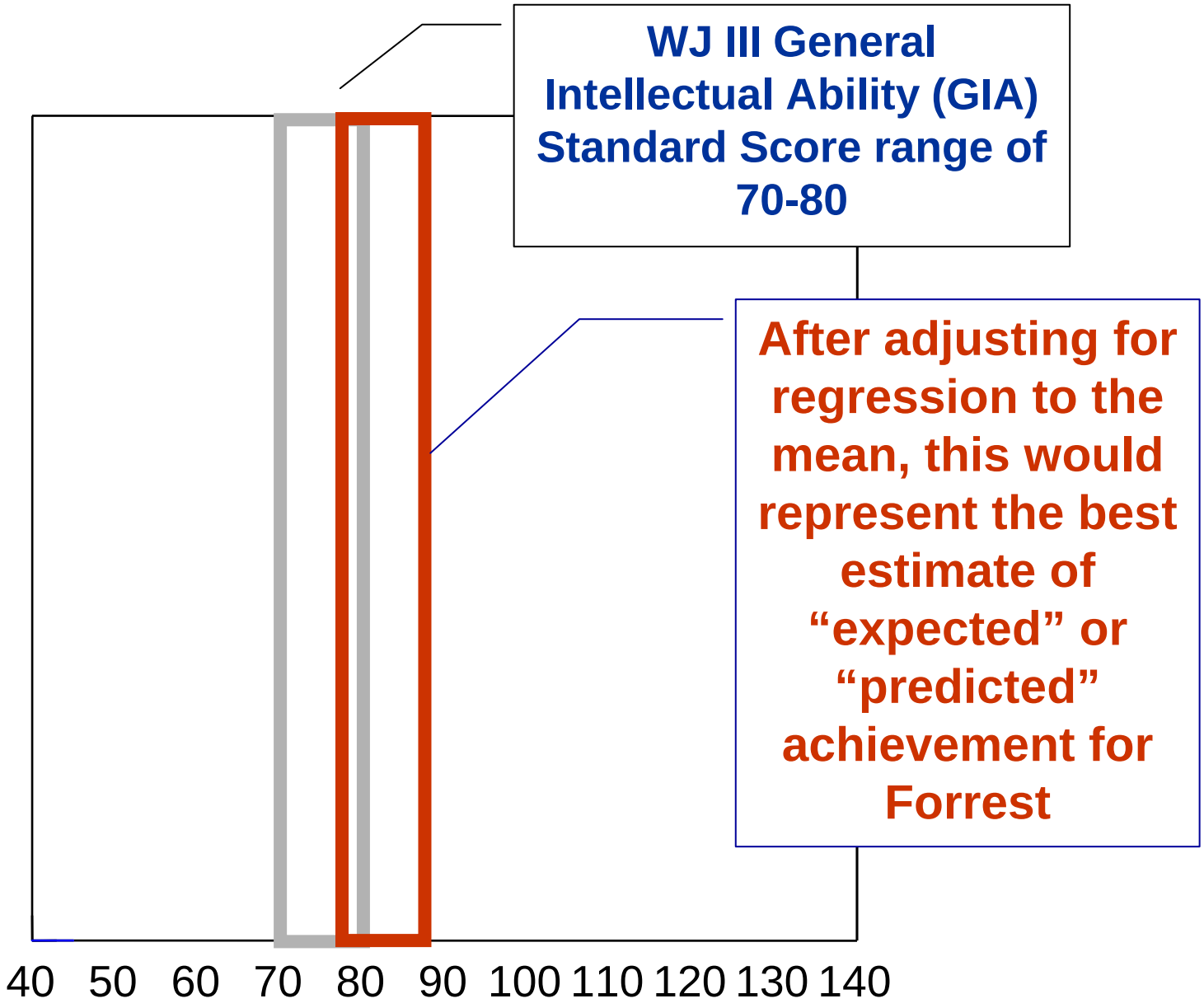




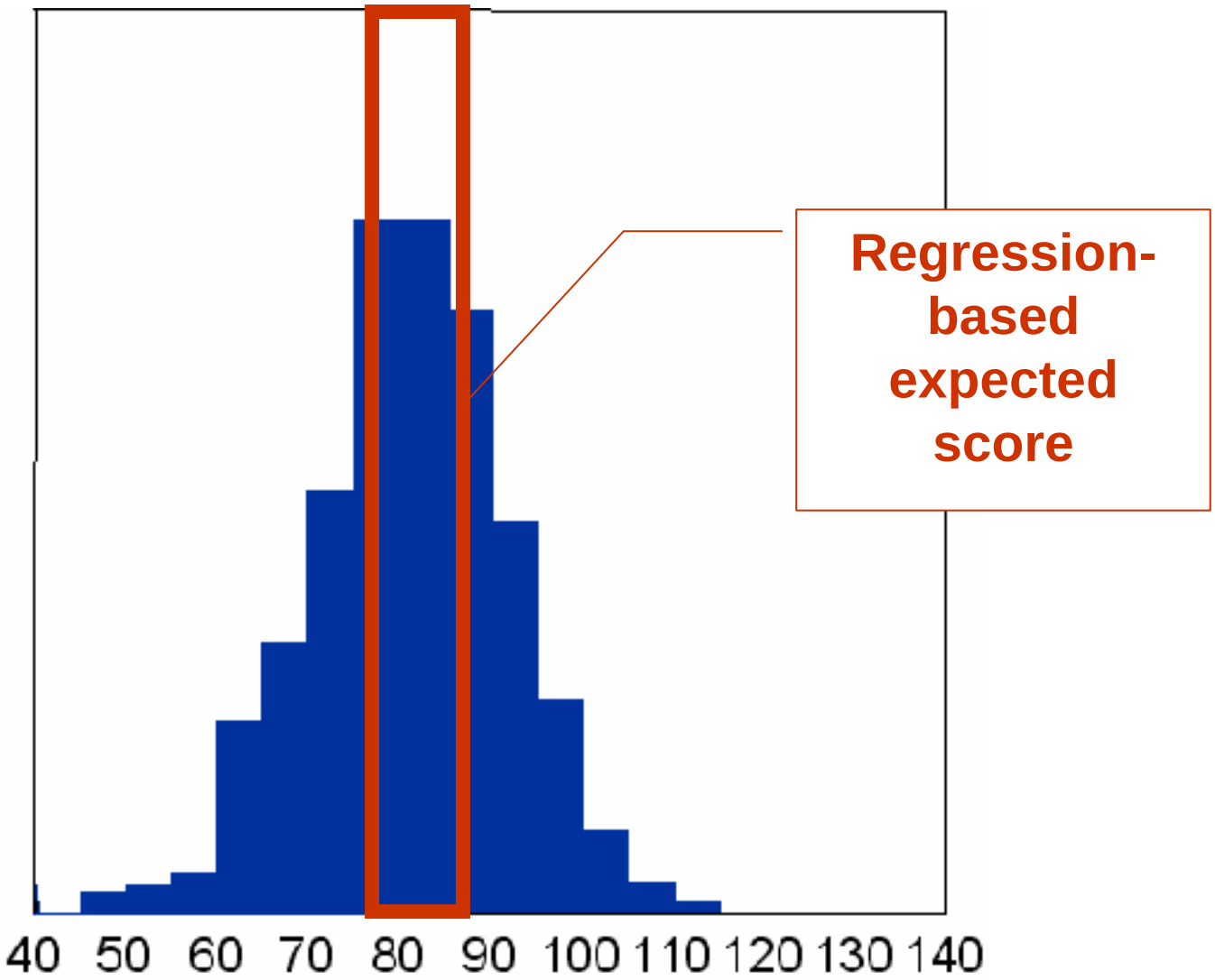
What should our expectations be for Forrest in reading?

Lets get an empirical answer from a national norm sample – the Woodcock-Johnson Battery-Third Edition (Woodcock, McGrew & Mather, 2001; WJ III)

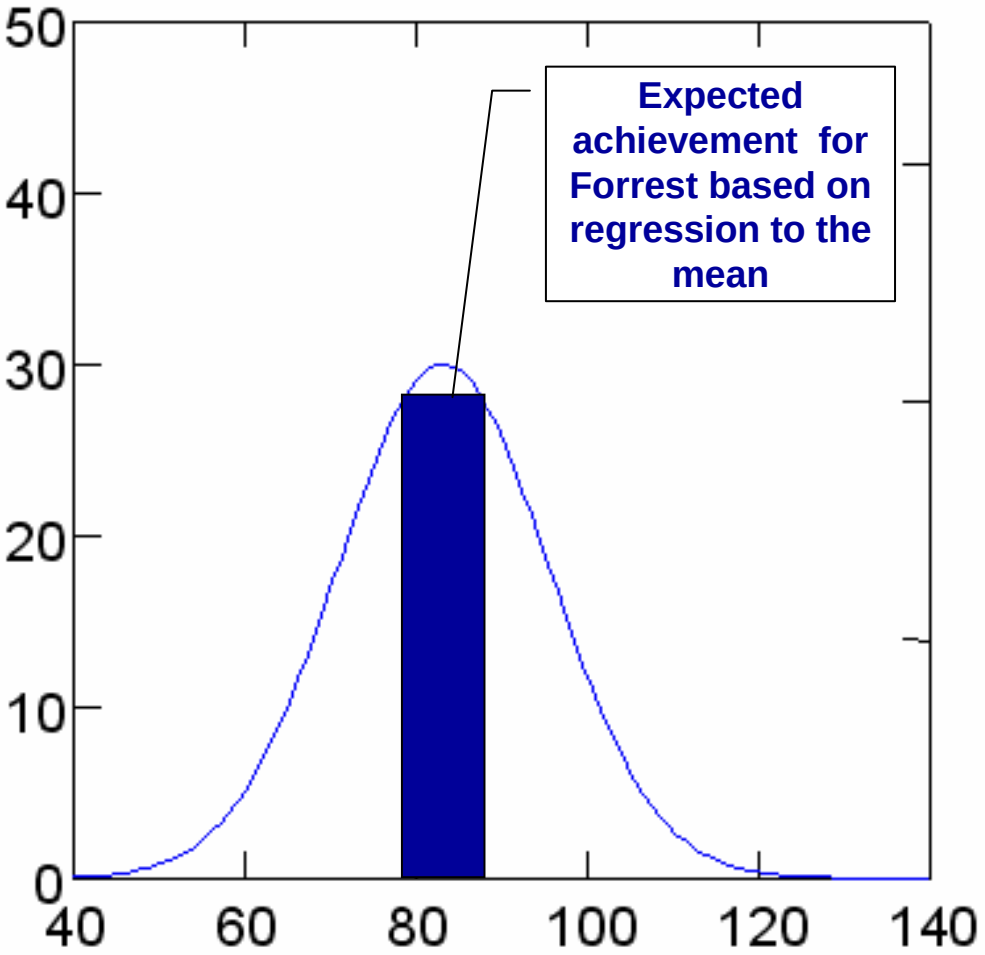




The histogram below represents the WJ III Basic Reading Skills achievement scores for all WJ III norm subjects with a GIA score of 70-80.

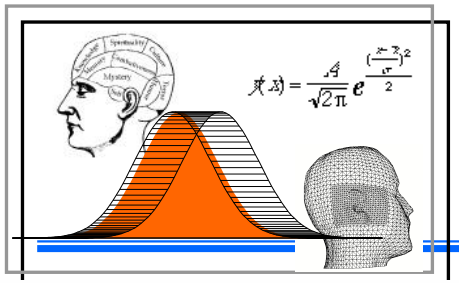


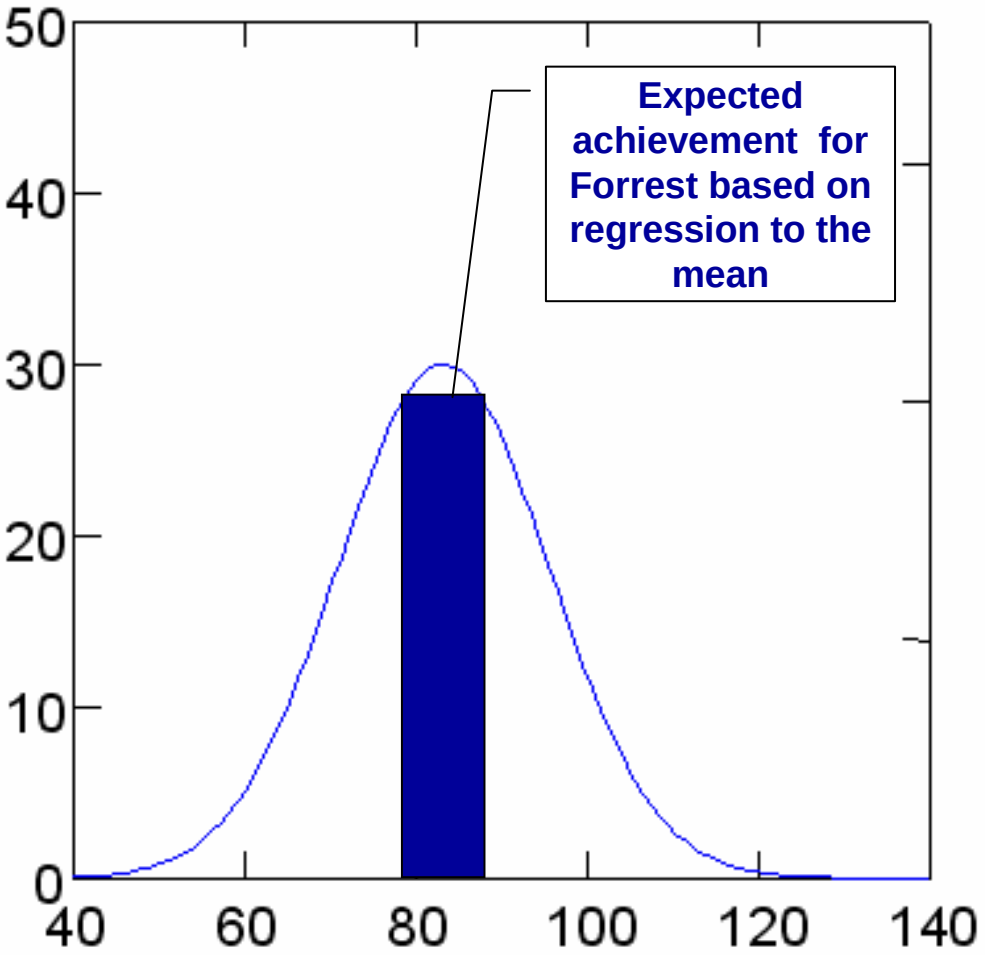
Lets take the histogram and plot a smoothed density plot around the same data. Below is the distribution of actual WJ III Basic Reading Skills scores for all WJ III norm subjects with a GIA score of 70-80



Major observation:

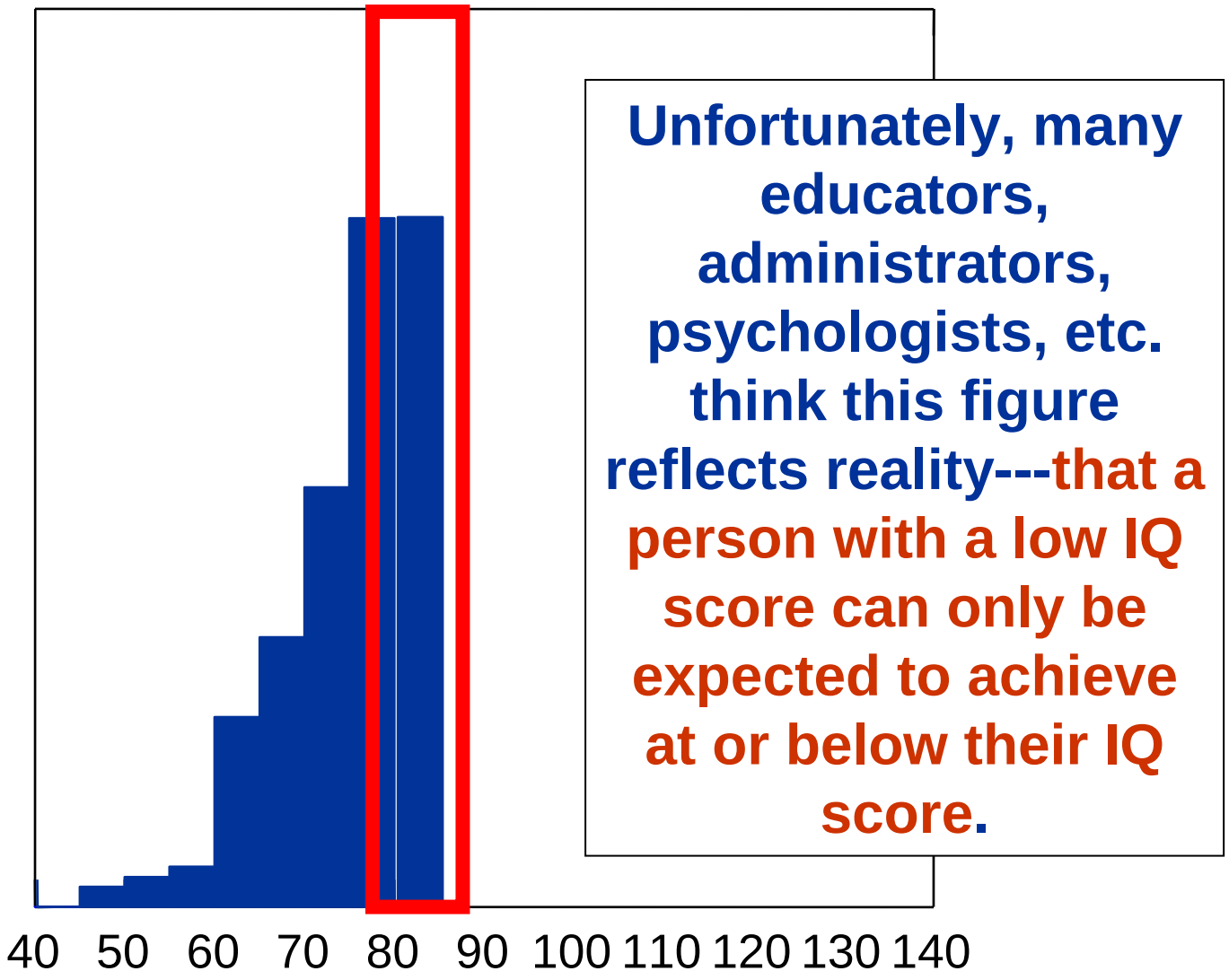
The histogram has the shape of a normal distribution, with half of the population with IQs from 70-80 being above, and the other half being below, the average "expected" or "predicted" level of achievement



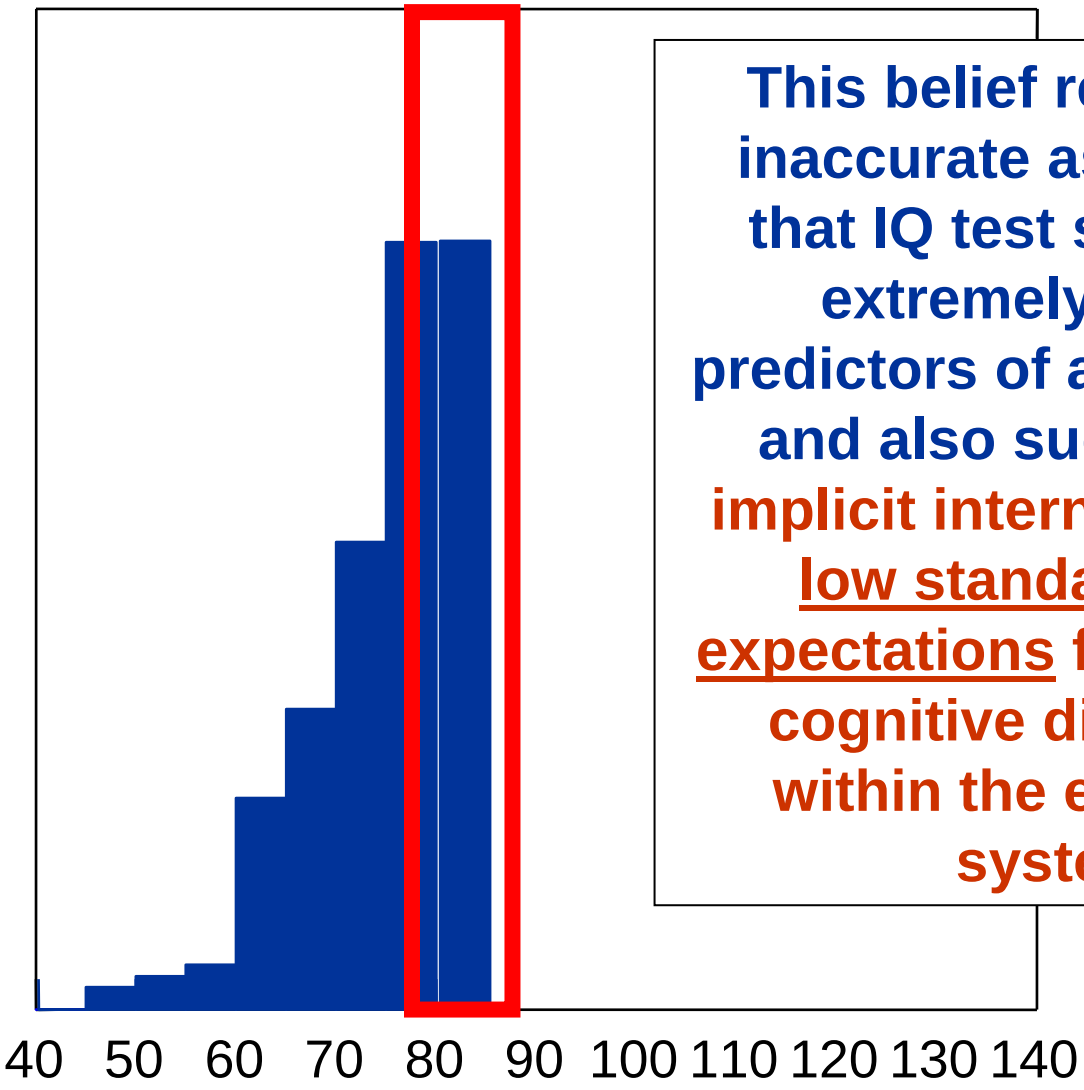


How can this be ?

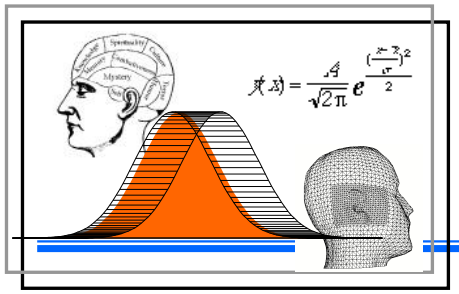
How can individuals achieve above their IQ score ?



Unfortunately, many educators, administrators, psychologists, etc. think this figure reflects reality---that a person with a low IQ score can only be expected to achieve at or below their IQ score.

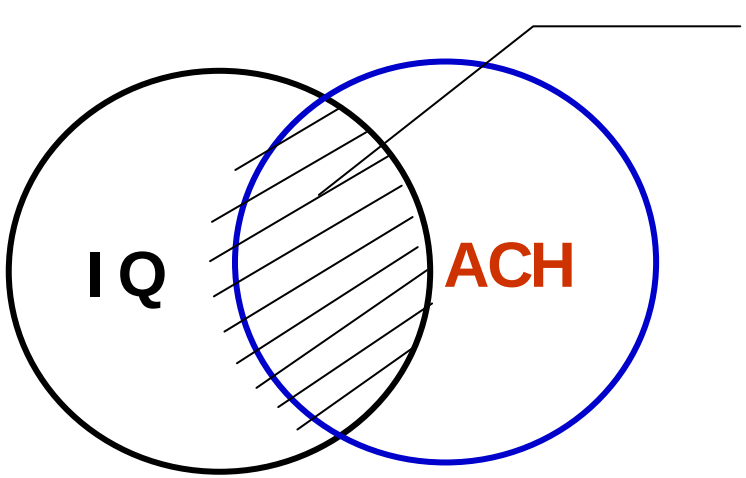


This belief reflects the inaccurate assumption that IQ test scores are extremely strong predictors of achievement and also suggests an implicit internalization of low standards and expectations for kids with cognitive disabilities within the education system

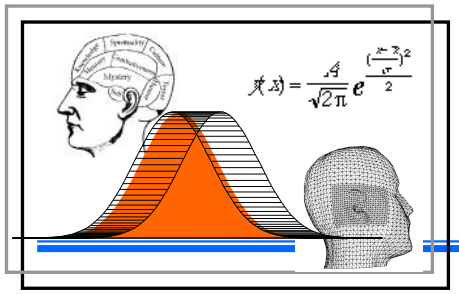


Our intelligence tests are ***fallible*** predictors of current and future achievement

Typical IQ-Ach correlations are in the .60 to .70 range



Our IQ tests can only account for 40 to 50 % of school achievement



What accounts for the other 50-60 % of school achievement?

Why isn't Forrest Gump just a feel good movie story, but an example of why half of all individuals, at any IQ level, will achieve above their IQ score ?

John B. Carroll's 1963 elegant Model of School Learning, which spawned a variety of models of school learning and educational productivity, reminds us that individual difference variables (e.g., IQ) are only PART of the equation of school learning. Other variables OUTSIDE of the individual help explain why someone achieves above or below their IQ score.

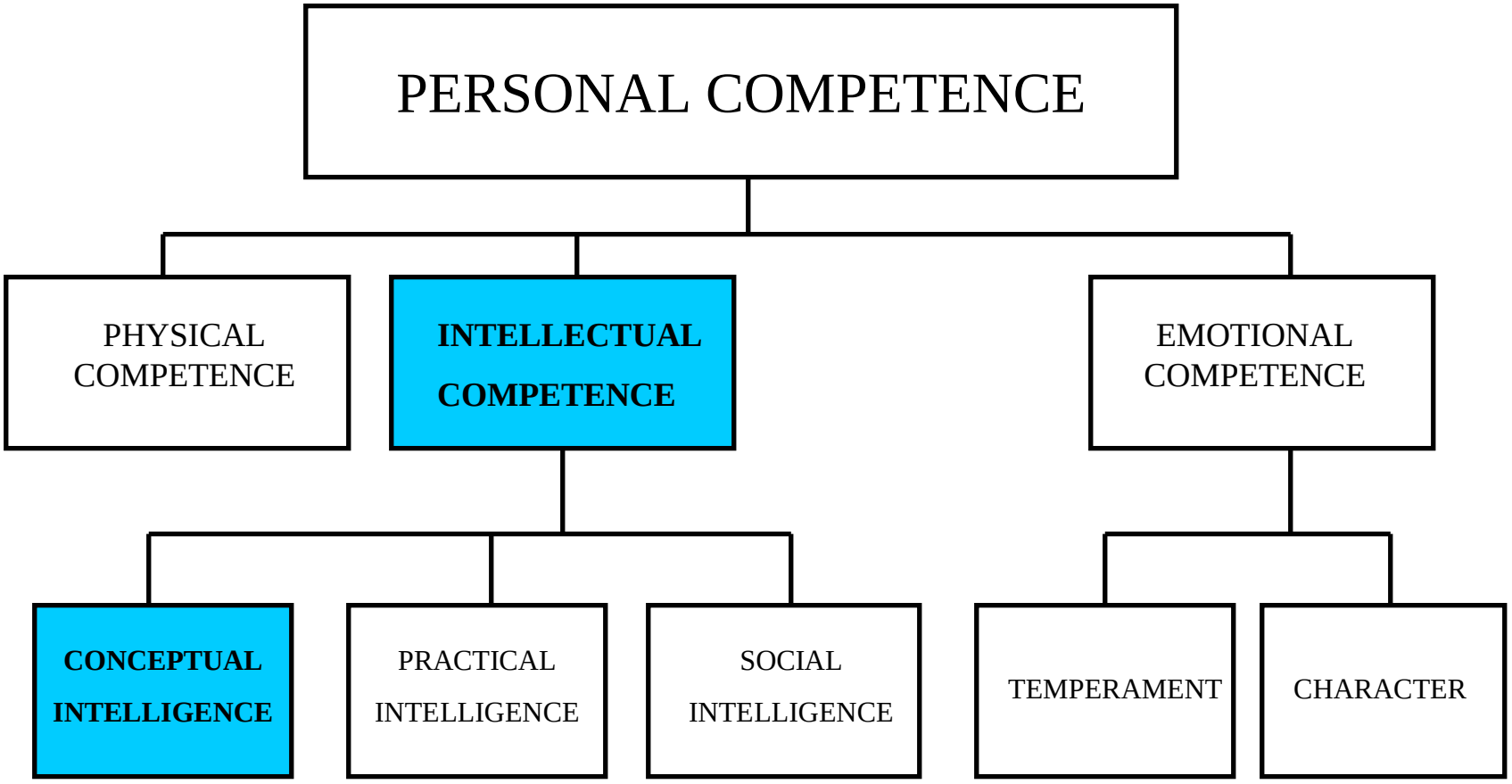
$$\textit{Degree of learning} = \frac{\text{time spent on a task}}{\text{time needed to learn task}} = \frac{\text{(opportunity)} \quad \text{(perseverance)}}{\text{(aptitude)} \left[\text{ability to understand directions}\right] \left[\text{quality of instruction}\right]}$$

Individual Difference Variables

Instructional Variables

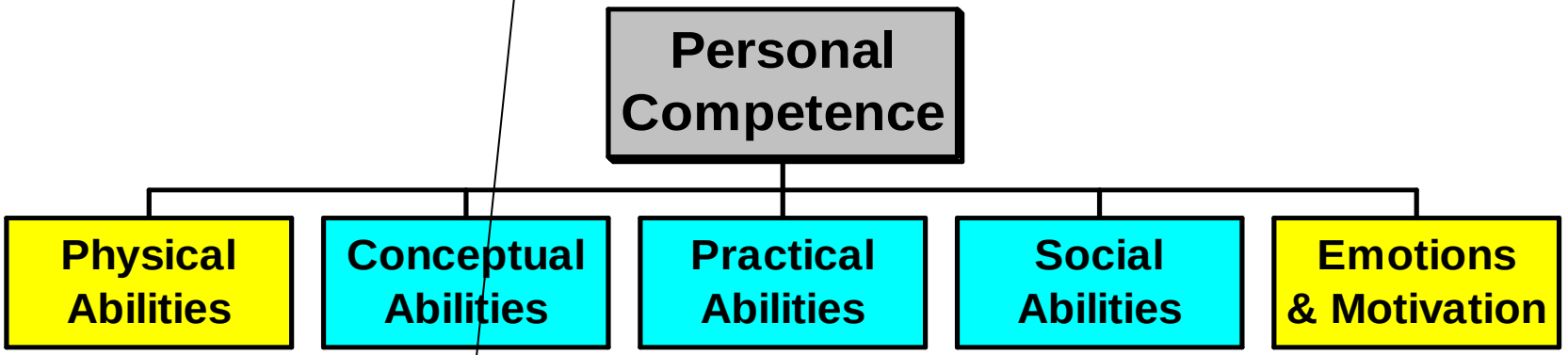
Portion measured by cognitive measures account for no more than 40% to 50 % of school learning

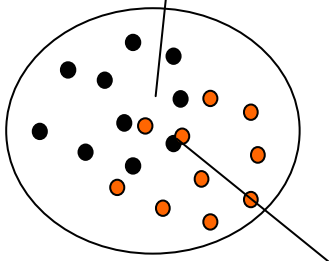
Greenspan's Model of Personal Competence (early version)



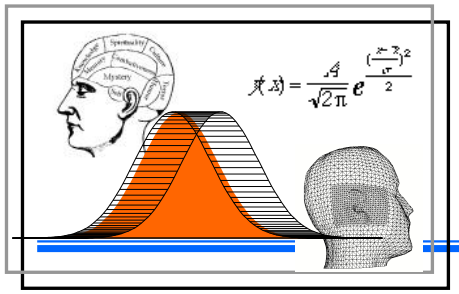
In addition, the pool of individual difference variables that influences a person's performance and achievements is much broader than just conceptual intelligence (what traditional IQ tests measure). Forrest had strong strengths in other domains such as social and practical intelligence, physical competence, temperament, etc.

Also, our current tests only “sample” certain cognitive & achievement abilities within the conceptual ability domain. White space = there is much we are NOT measuring



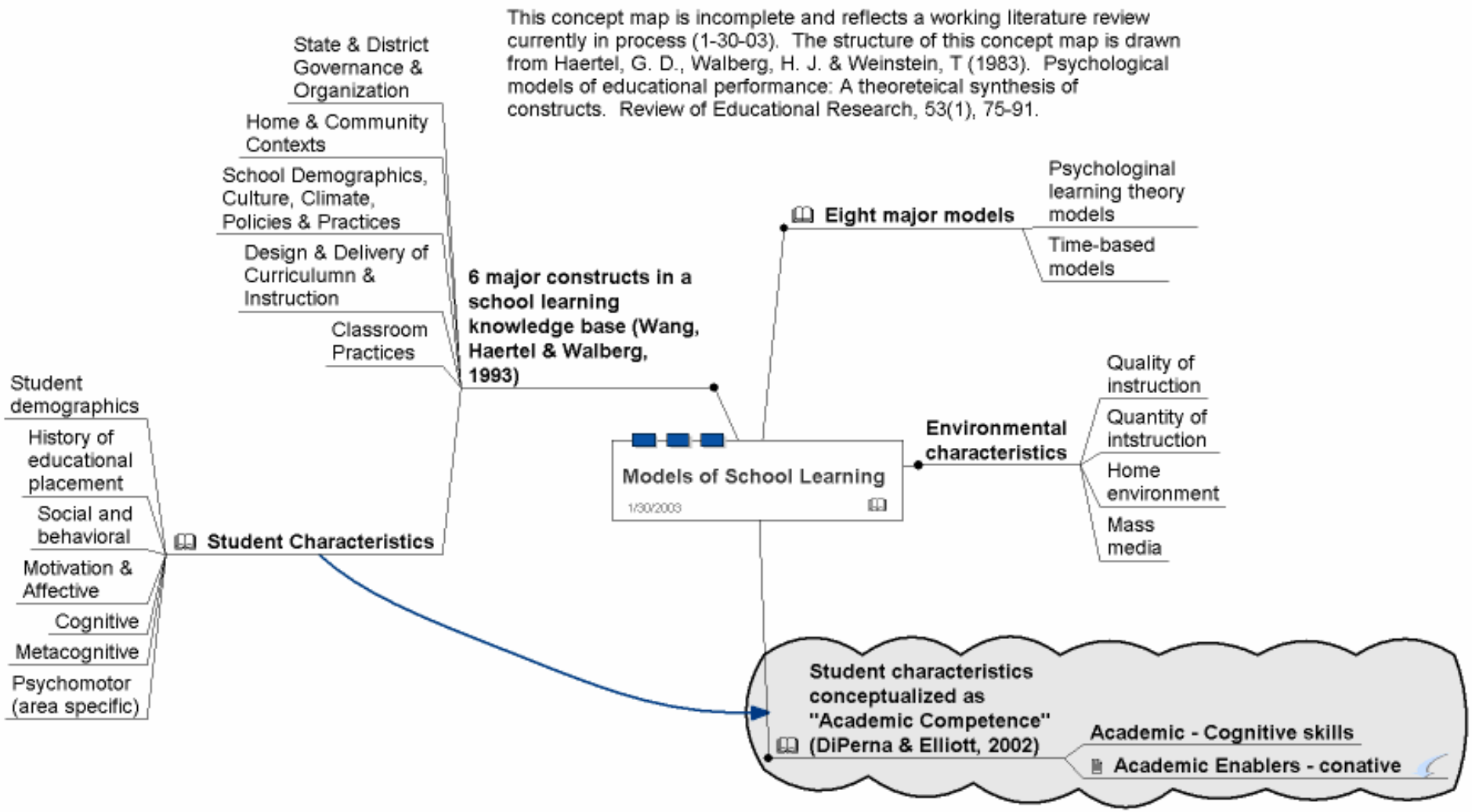


At best, these type of tests can only account for approximately ½ of a person’s school achievement

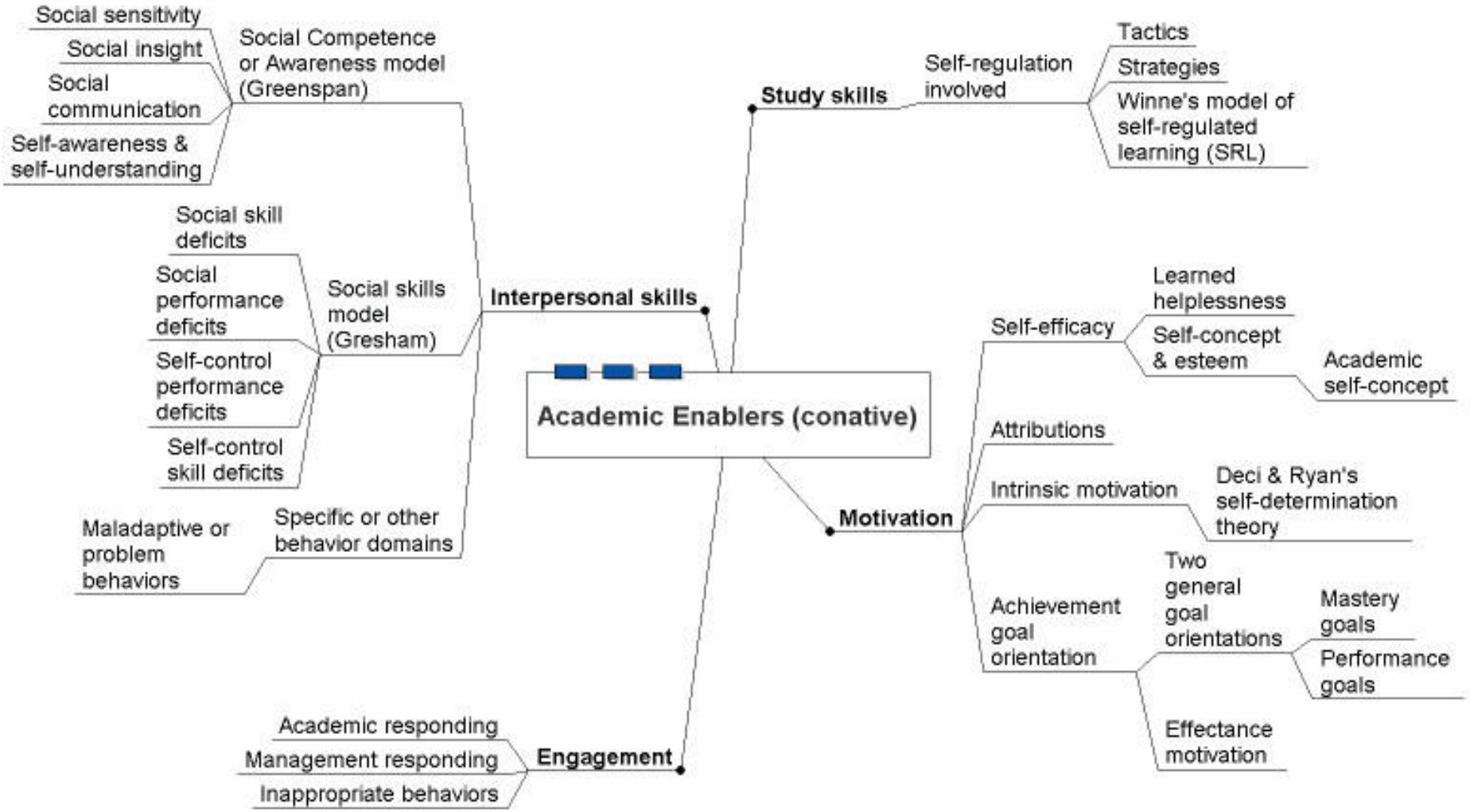


"Aptitude" for school learning (in the Richard Snow sense), is a multidimensional construct consisting of cognitive and conative variables

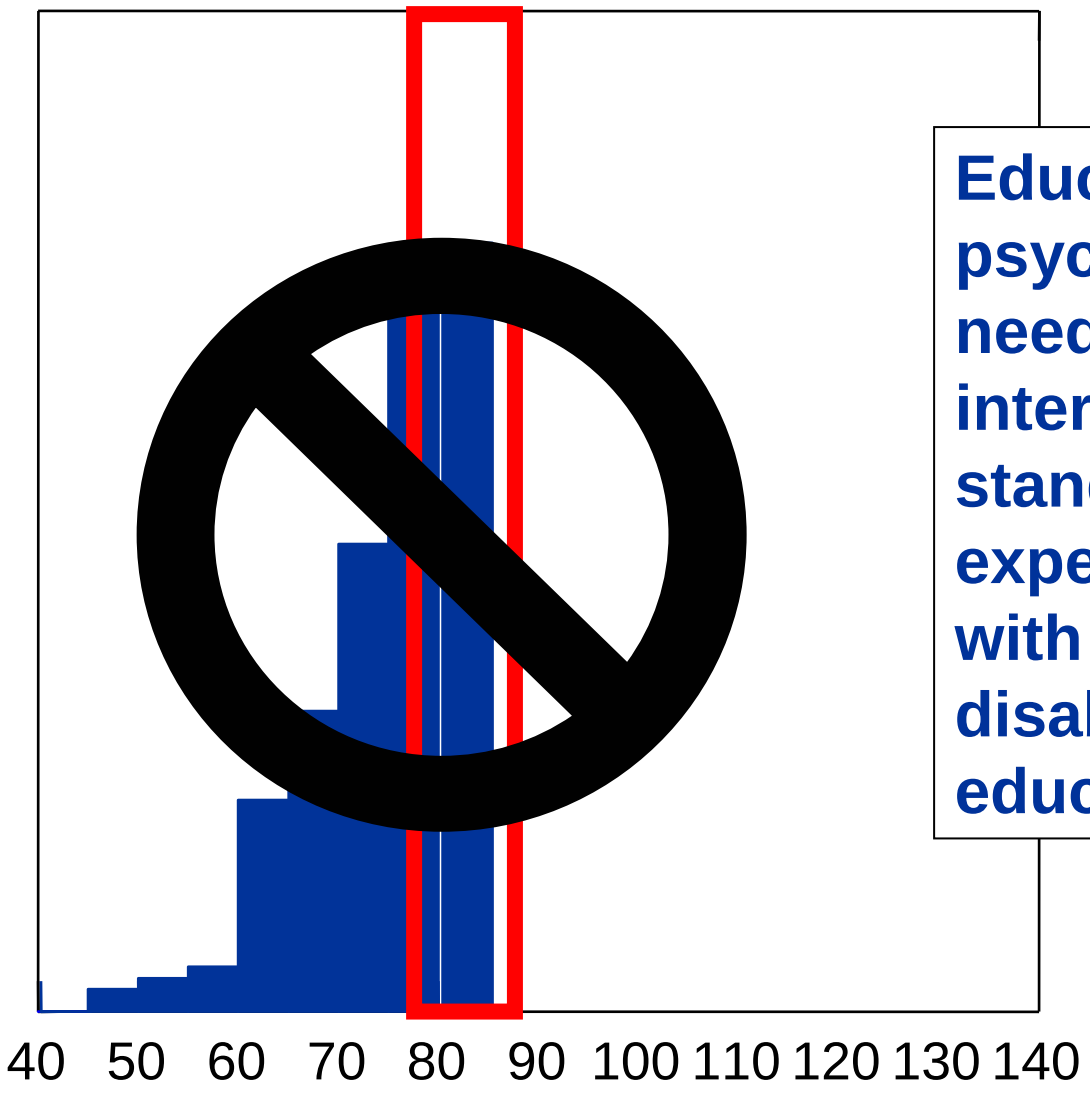
To understand why individuals at any ability level (e.g., Forrest Gump) perform/achieve as they do, requires an appreciation of the complex interaction of individual and environmental variables as reflected in the next two figures



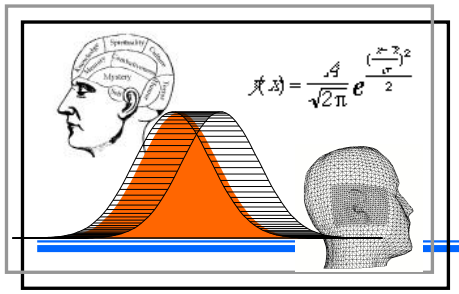
This concept map is incomplete and reflects a working literature review currently in process (1-30-03). The structure of this concept map is drawn from DiPerna, J. & Elliott, S. (2002). Promoting Academic Enablers to Improve Student Achievement: An Introduction to the Miniseries. School Psychology Review, 31(3), 293-29



Concluding comments

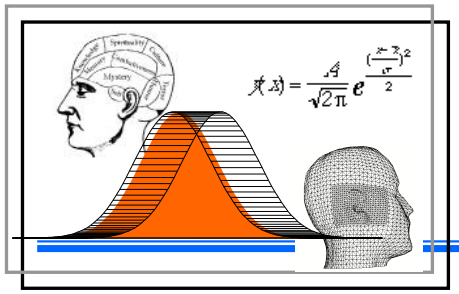


Educators, psychologists, etc. need to resist the internalization of low standards and expectations for kids with cognitive disabilities within the education system

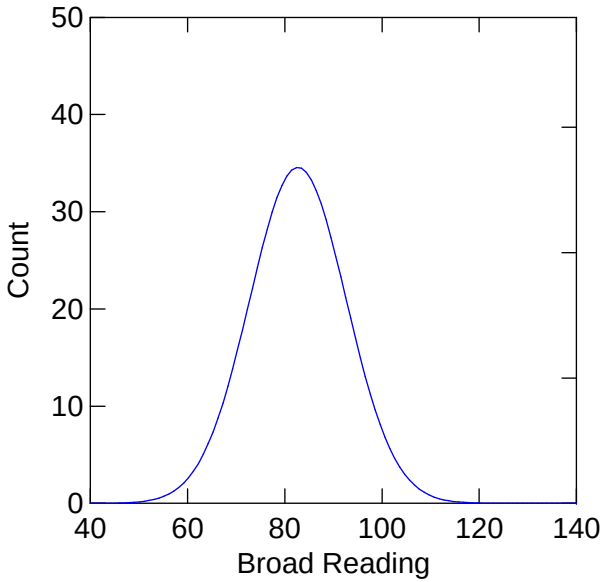


Concluding comments

Current research and assessment technology does not allow us to accurately predict which children will be in the top half of the achievement distribution at any given level of general intelligence



Concluding comments



For most children with cognitive disabilities (those with below average IQ scores), it is NOT possible to predict individual levels of expected achievement with the degree of accuracy that would be required to deny a child the right to the high standards/expectations

Remember Forrest Gump!