



# Flynn Effect 2: Political Enthusiasm

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# Flynn Effect seized as new rationale for failed policies


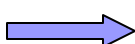
Rekindles false hope that:

- Intelligence is highly malleable
  - Despite all evidence to the contrary
- Social policy can reduce social inequality by reducing IQ differences
  - Despite a half century of failed efforts

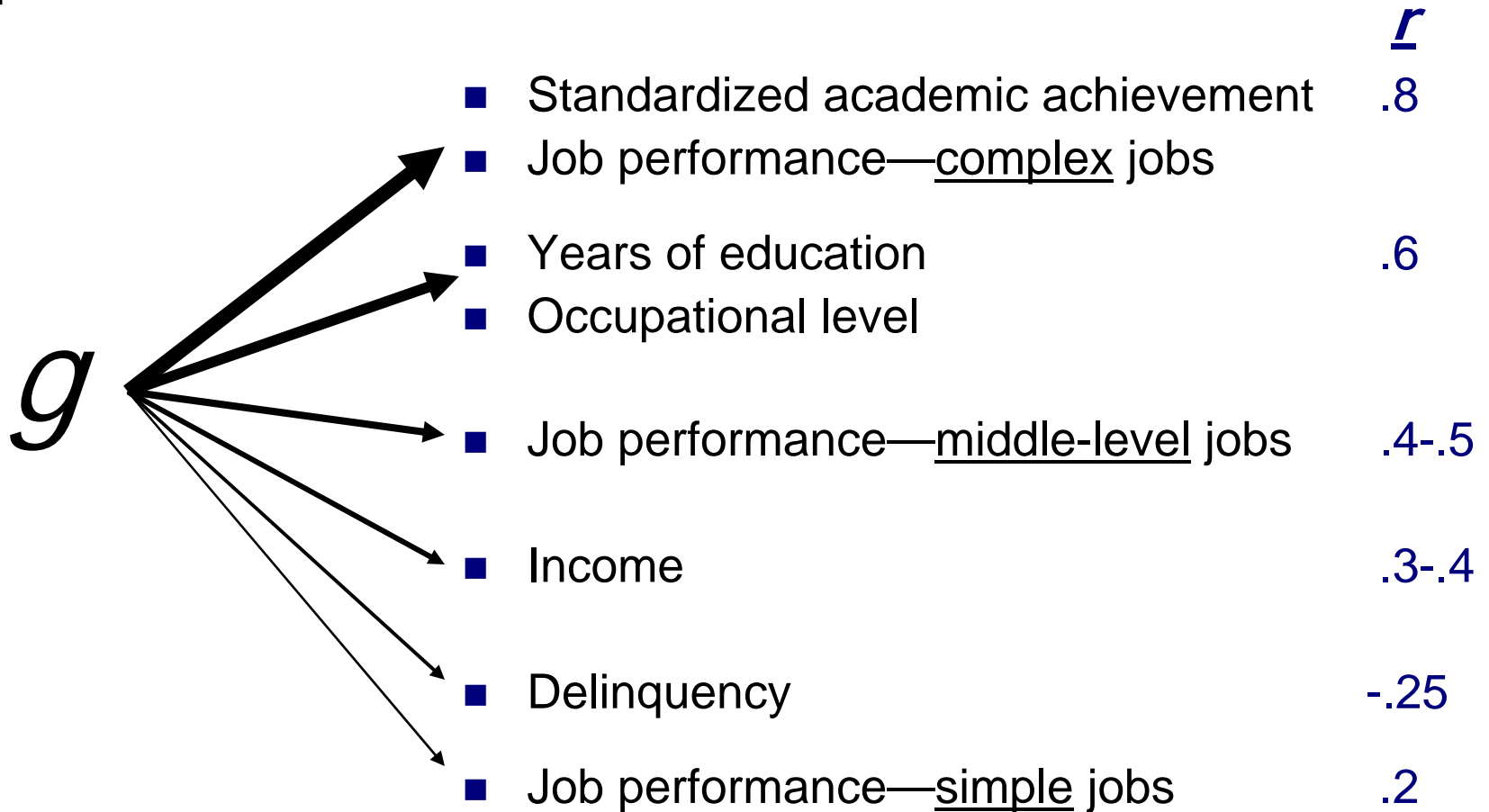
Time to consider an alternative:

- Cognitive barriers are malleable
  - Focus on lowering cognitive barriers, not changing people
- Aid the most vulnerable by raising their quality of life, not by attempting to equalizing outcomes for all

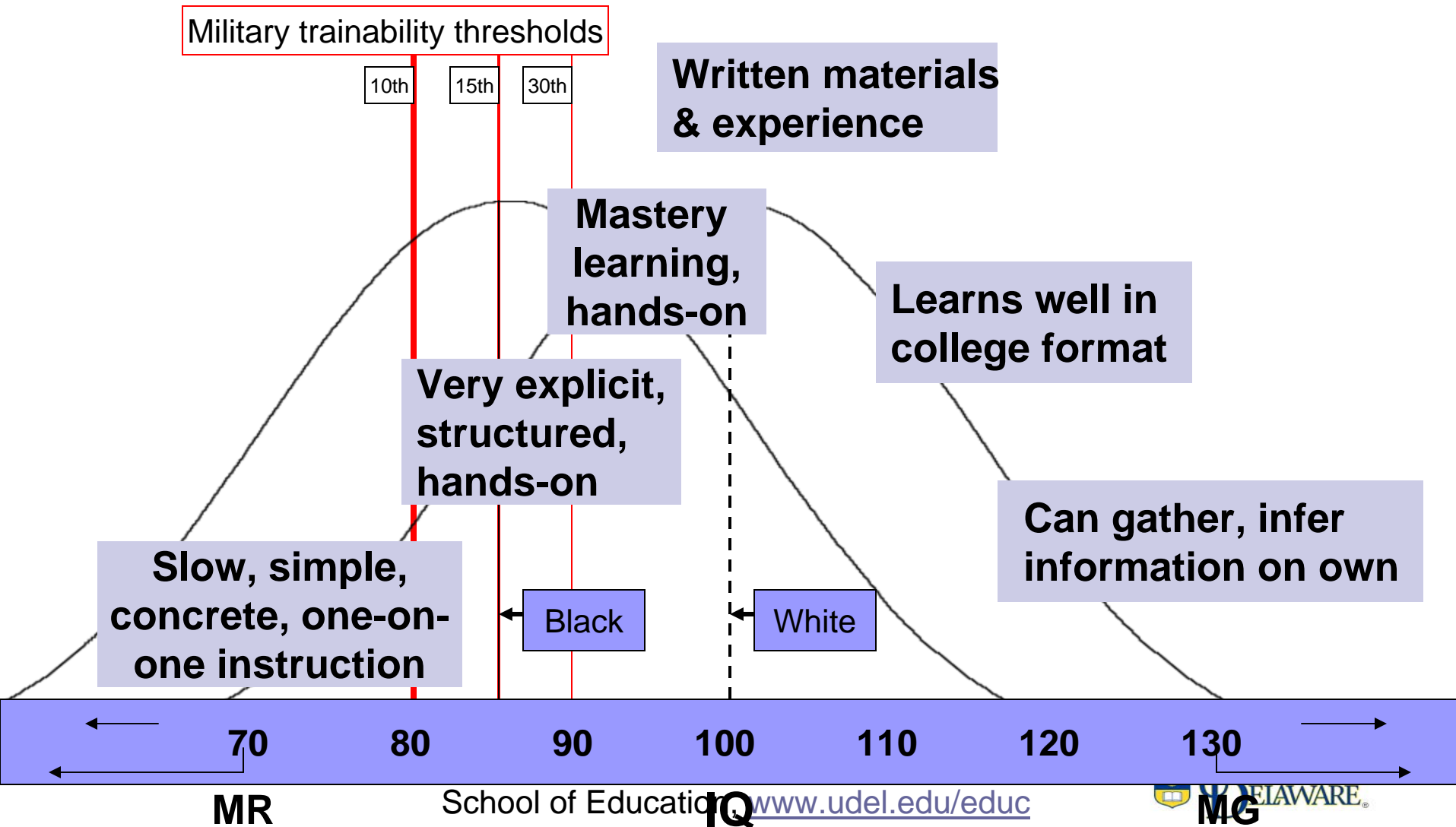
# Complexity: Boon or Bane?

- Flynn Effect often explained as result of cultural complexity “exercising” people’s minds
  - Presumption: Complexity  cognitive growth
  - Presumption: Complexity is good for us
- Stop!
  - Reality: IQ ( $g$ ) is the ability to deal with cognitive complexity
  - Reality: Complexity  cognitive barrier
  - Cognitive complexity enriches the lives of bright individuals, but creates roadblocks for everyone else

# Differences in $g$ have highly predictable social effects

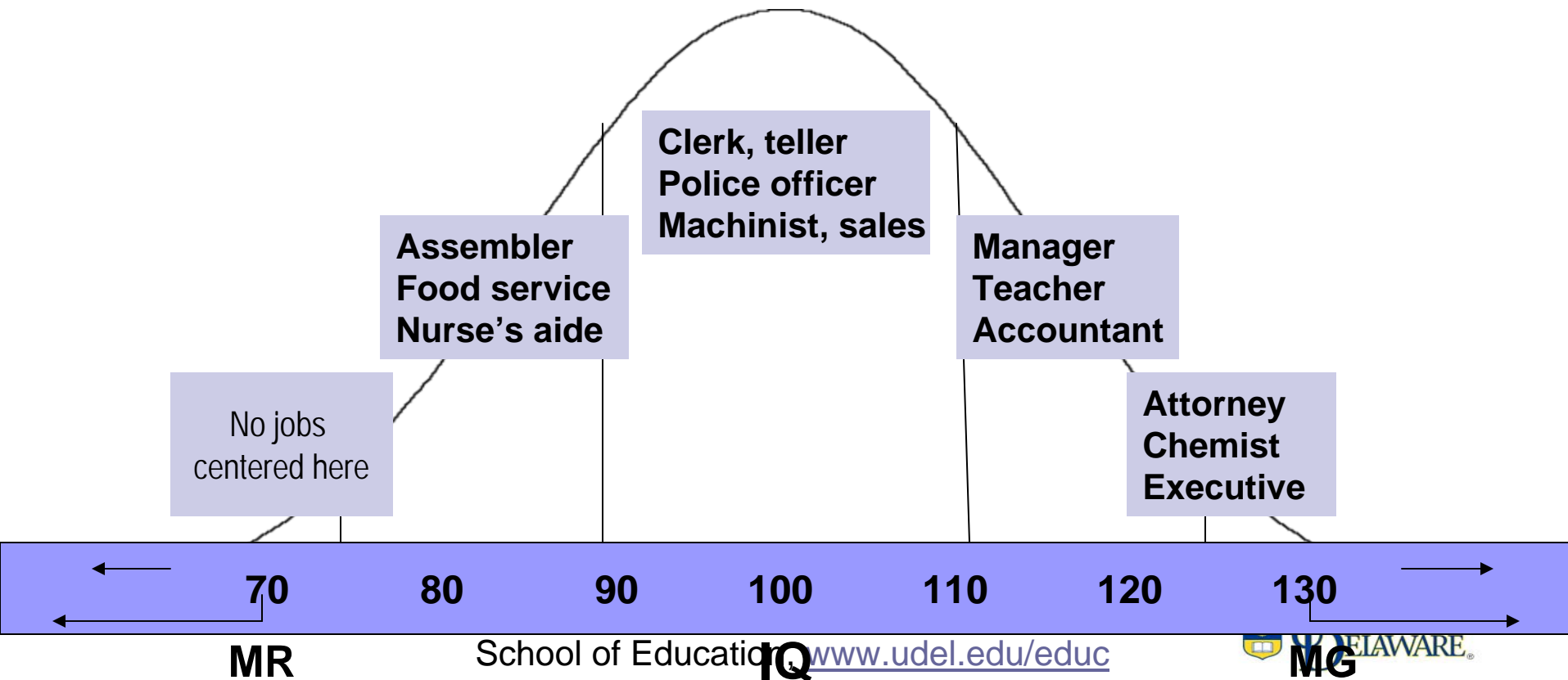


# The effects are important



# Typical Occupations Differ by IQ Range

Typical IQ range of workers



# Effects pervade daily life: Functional Literacy (~g)

NALS Level	% pop (white)	Reading grade level	Just a sample of the many tasks adults expected to learn on own
1	14%	2.5	<ul style="list-style-type: none"> <li>Total bank deposit entry</li> <li>Locate expiration date on driver's license</li> </ul>
2	25%	7.2	<ul style="list-style-type: none"> <li>Determine difference in price between 2 show tickets</li> <li>Locate intersection on street map</li> </ul>
3	36%	12	<ul style="list-style-type: none"> <li>Calculate miles per gallon from mileage record chart</li> <li>Write brief letter explaining error on credit card bill</li> </ul>
4	21%	16	<ul style="list-style-type: none"> <li>Use eligibility pamphlet to calculate SSI benefits</li> <li>Explain difference between 2 types of employee benefits</li> </ul>
5	4%	16+	<ul style="list-style-type: none"> <li>Use calculator to determine cost of carpet for a room</li> <li>Use table of information to compare 2 credit cards</li> </ul>

# Effects pervade daily life: Functional Literacy (~g)

NALS Level	% pop (white)	Reading grade level	Just a sample of the many tasks adults expected to learn on own
1	14%	2.5	<p><b>NOT READING <i>PER SE</i>, BUT:</b></p> <ul style="list-style-type: none"> <li>• “complex information processing skills”</li> <li>• “verbal comprehension &amp; reasoning”</li> <li>• “ability to understand, analyze, evaluate”</li> </ul> <p style="text-align: center;">} <i>g</i></p>
2	25%	7.2	
3	36%	12	
4	21%	16	
5	4%	16+	
			Predicts life outcomes in same pattern as does IQ



# Effects pervade daily life: Functional literacy

NALS Level	% pop (white)	% pop (black)	Simulated Everyday Tasks Adults aged 16+
1	14%	38%	<ul style="list-style-type: none"> <li>Total bank deposit entry</li> <li>Locate expiration date on driver's license</li> </ul>
2	25%	37%	<ul style="list-style-type: none"> <li>Determine difference in price between 2 show tickets</li> <li>Locate intersection on street map</li> </ul>
3	36%	21%	<ul style="list-style-type: none"> <li>Calculate miles per gallon from mileage record chart</li> <li>Write brief letter explaining error on credit card bill</li> </ul>
4	21%	4%	<ul style="list-style-type: none"> <li>Use eligibility pamphlet to calculate SSI benefits</li> <li>Explain difference between 2 types of employee benefits</li> </ul>
5	4%	<1%	<ul style="list-style-type: none"> <li>Use calculator to determine cost of carpet for a room</li> <li>Use table of information to compare 2 credit cards</li> </ul>

# Effects pervade daily life: Functional literacy

NALS Level	% pop (white)	% pop (black)	Simulated Everyday Tasks Adults aged 16+
1	14%	38%	At high risk (National Goals Panel)
2	25%	37%	
3	36%	21%	<ul style="list-style-type: none"> <li>Calculate miles per gallon from mileage record chart</li> <li>Write brief letter explaining error on credit card bill</li> </ul>
4	21%	4%	<ul style="list-style-type: none"> <li>Use eligibility pamphlet to calculate SSI benefits</li> <li>Explain difference between 2 types of employee benefits</li> </ul>
5	4%	<1%	<ul style="list-style-type: none"> <li>Use calculator to determine cost of carpet for a room</li> <li>Use table of information to compare 2 credit cards</li> </ul>

# Importance of Literacy (g) in Health Self-Care

- Patients examine the actual vials or documents

% of urban hospital outpatients <b><u>not</u></b> knowing:	Health literacy level		
	V-low	Low	OK
How to take meds 4 times per day	24	9	5
When next appointment is scheduled	40	13	5
How many pills of a prescription to take	70	34	13
What an informed consent form is saying	95	72	22

Many professionals have no idea how difficult these “simple” things are for others

# Accident Prevention is Cognitively Demanding: Motor Vehicle Deaths

Australian veterans followed to age 40	Death rate per 10,000	
IQ: above 115	51.3	
100-115	51.5	
85-100	92.2	<b>2x</b>
80- 85	146.7	<b>3x</b>

“People with lower IQ may have a poorer ability to assess risks and, consequently, may take more risks in their driving.”

# Literacy (g) critical in self-management of chronic disease: Insulin-Dependent Diabetics

And these are their <i>simplest</i> tasks	Health literacy level		
	V-low	Low	OK
<b>Signal:</b> Thirsty/tired/weak usually means <u>blood sugar too high</u> →	40	31	25
<b>Action:</b> Exercise lowers blood sugar →	60	54	35
<b>Signal:</b> Suddenly sweaty/shaky/hungry usually means <u>blood sugar too low</u> →	50	15	6
<b>Action:</b> Eat some form of sugar →	62	46	27


# Health self-care is a lifelong job: What makes some jobs especially complex?

Job analysis 1 (Arvey, 1986)

Job requirements:	Correlation with factor
▪ <u>Learn</u> and recall relevant information	<b>.75</b>
▪ <u>Reason</u> and make judgments	<b>.71</b>
▪ Deal with unexpected situations	<b>.69</b>
▪ <u>Identify problem</u> situations quickly	<b>.69</b>
▪ React swiftly when unexpected problems occur	<b>.67</b>
▪ Apply common sense to <u>solve problems</u>	<b>.66</b>
▪ <u>Learn</u> new procedures quickly	<b>.66</b>
▪ Be alert & <u>quick to understand things</u>	<b>.55</b>

# Specific tasks that increase job complexity

Job analysis 2 (Gottfredson, 1997)

Complex	$r$		
	.88	Self-direction	Combine information
	.86	Reason	Advise
	.85	Update knowledge	Write
	.83	Analyze	Plan
	.79	Lack of structure	Negotiate, Persuade
	.71	Criticality of position	Coordinate
			Instruct
Simple			

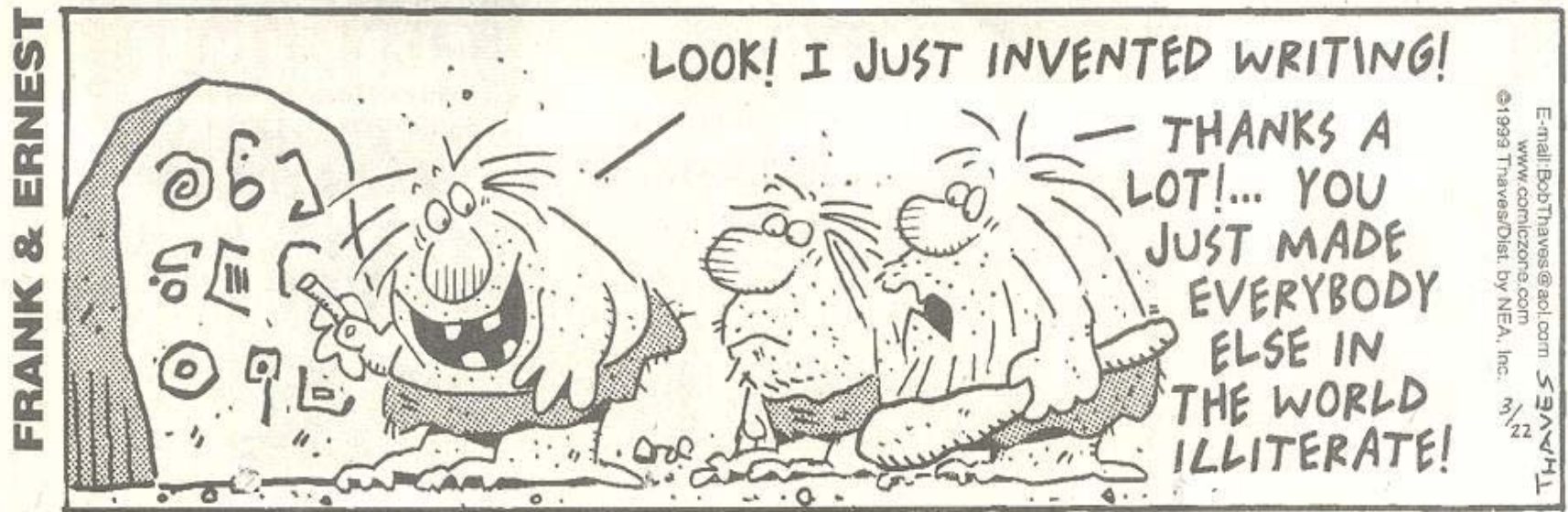
Attorney  
Teller  
Custodian

Patient?

School of Education, [www.udel.edu/educ](http://www.udel.edu/educ)

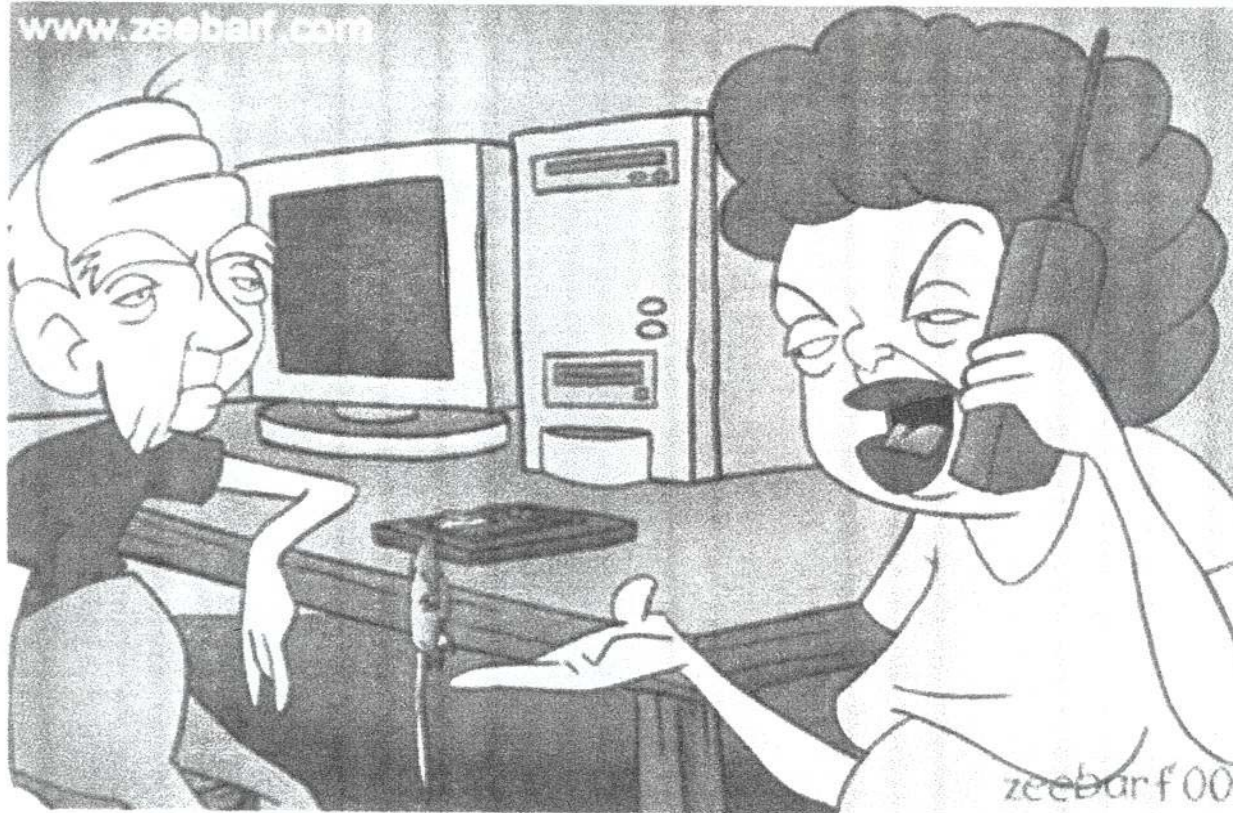
# Smart people make life more complex for the rest of us

(Scott Adam's "Evolution of Idiots")





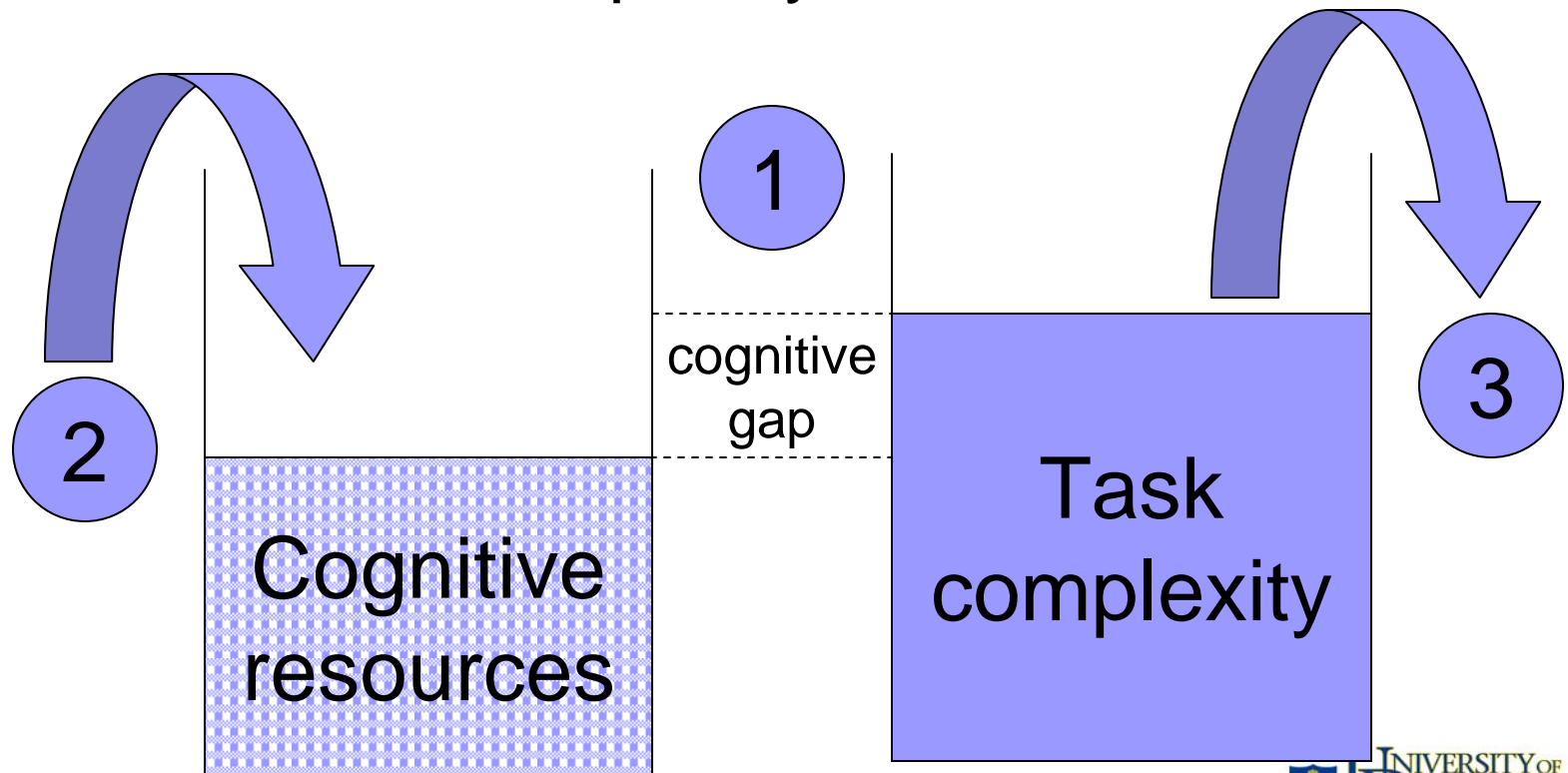
# Cognitive hurdles increase with age & declining powers



"Okay your father  
managed to get a mouse.  
Now how do we use it?"

# Complexity breeds cognitive error: We can reduce the risk of error

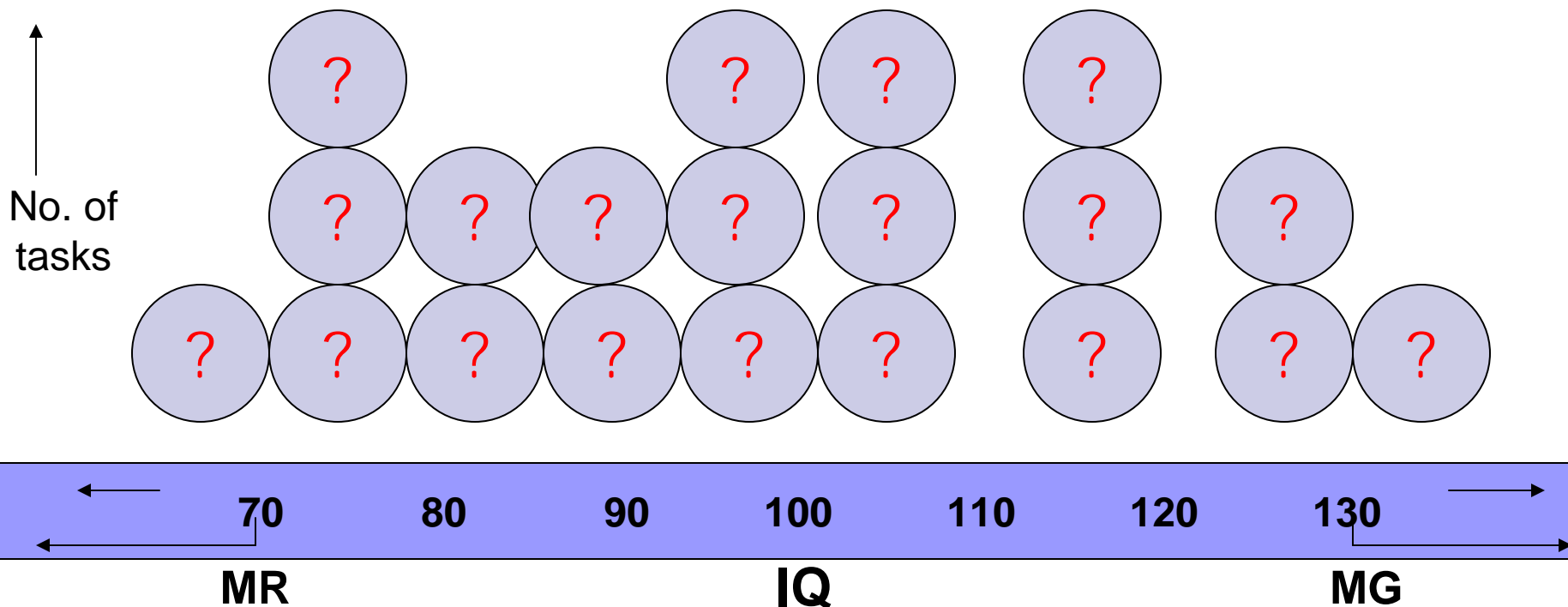
1. Mind the gap (between people's abilities & task demands)
2. Provide cognitive assistance (for the most vulnerable)
3. Reduce task complexity (where needless)



# Example: Can audit the distribution of cognitive hurdles in health care

Broad range is likely

And medical advances increase complexity



Thank you.