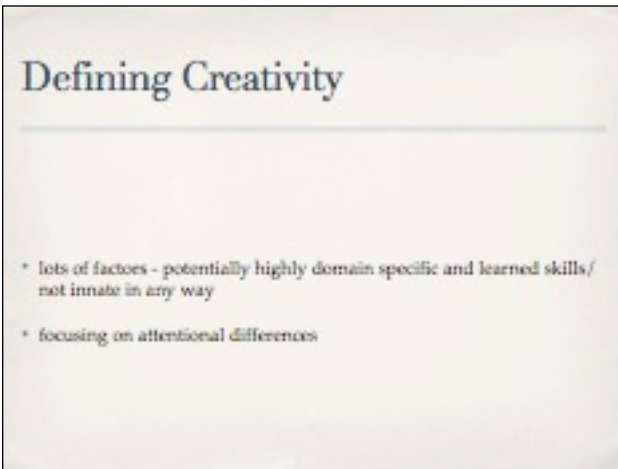


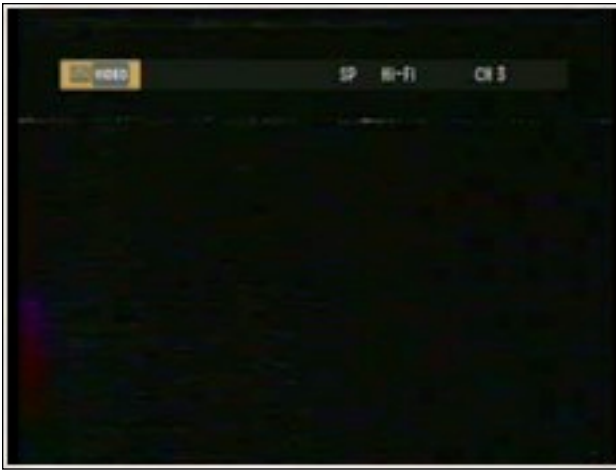
So why do we have this notion of the “mad scientist” the “the mad creative genius” and “crazy artist?” Is there something to these notions that there is something not quite right about our creative people? And, if so, what are the commonalities that both groups express? Are there commonalities?

These commonalities could be many: what provokes or holds their attention, what their skill sets are, what their imaginations are like, what influences they seek and what influences attract them, how qualitatively different do they see the world and are there cognitive aspects of these qualitative insights that differ systematically?

And the reverse could be asked of our “crazies”: are their aspects of schizotypy that creative ‘types’ have in common? (subquestion: is there such a thing as a creative ‘type’- are there typeS?) Are genes that influence the development of mental illnesses such as schizophrenia and bipolar also influencing factors commonly found in creative types?



credit: Shelley Carson MA Harvard



## The task: Latent Inhibition

- first discovered in mammals
- Latent Inhibition is **when a stimulus** that has not had any significance in the past **takes longer to acquire meaning as a signal** than a newer stimulus. e.g. Ignoring background noise as meaningful
- LI is affected by many factors, one of the most important of which is context. Context needs to remain the same in the pre-exposure and test phases. If context is changed, LI is severely attenuated. Working-memory is inundated with experimentally familiar but phenomenally novel stimuli, each competing for the limited resources for efficient information processing.

## Latent Inhibition Distributions

- Bimodal distributions
- one problem (for the analysis) is that participants scoring "30" shouldn't have scored at all...
- there seems to be a dead spot around 20, when everyone spaces out... could be an interesting place to investigate...

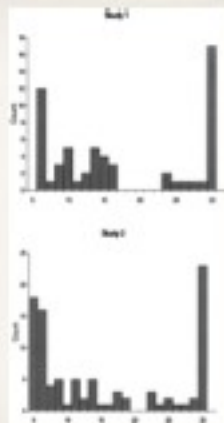


Figure 2. Bimodal distributions of latent inhibition scores for the high and low groups in the study (Carson, 2011).

## Carson, Peterson & Higgins 2003 Experimental Results

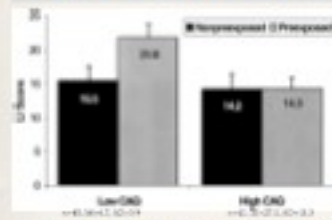


Figure 2. Creative Achievement Questionnaire (CAQ) and later inhibition (LI) scores in the preposed and nonpreposed conditions. Error bars represent the standard error (positive value only) for the mean LI score of each high-low CAQ × Condition group.

- Two groups: High Creatives & Low Creatives
- Two experimental conditions: exposed to stimulus and not exposed to stimulus
- Expectation is: all preposed (grey) subjects (if there was no effect) to have high LI scores
- one good question would be: Do higher CAQ scores also have higher IQs?

## Eminent Achievers

- "The LI scores of the eminent creative achievers ( $M=11.1$ ,  $SD=7.6$ ) were significantly lower than the LI scores of the control group ( $M=19.4$ ,  $SD=10.5$ ). Whereas control subjects were equally likely to display either high or low LI scores, eminent creative achievers were seven times more likely to have low rather than high LI scores. (Figure 4)"

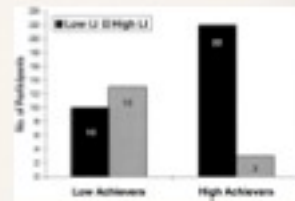


Figure 4. Contingency table of high and low later inhibition (LI) scores (Preposed) for eminent creative achievers across controls.

## Role of IQ

- Threshold theory of IQ (35) being necessary but not sufficient for creative achievement
- 21 of 25 eminent achievers had IQs over 120
- 11 of 23 controls had IQs over 120
- Low LI/high IQ group demonstrated substantially higher CAQ scores than all other groups
- "When we regressed LI & IQ scores on the CAQ scores, negative LI scores and positive IQ scores jointly predicted about one third of the variance in creative achievement scores,  $F(2,45)=9.55$ ,  $R^2=0.30$ , with LI scores alone accounting for 19% of the variance,  $F(1,45)=16.55$ ,  $R^2=0.35$ . The LI × IQ interaction was highly significant $t^2=0.98$ ."

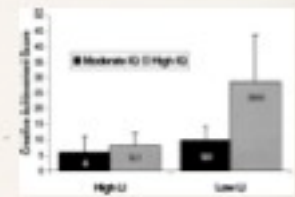


Figure 3. Creative Achievement Questionnaire (CAQ) scores of high-low later inhibition (LI) and high-restriction IQ groups in preposed and nonpreposed conditions. Error bars represent the standard error (positive value only) for the mean CAQ score of each high-low LI × IQ group.

# Questions.

## Work in Progress: Hypotheses & Nulls

- H1: Creative individuals exhibit some of the characteristics of attentional differences that schizotypal individuals exhibit?
- NH1: Creative individuals do not exhibit some of the characteristics of attentional differences that schizotypal individuals exhibit
- H2: Creative individuals exhibit some of the attentional deficits that schizotypal individuals exhibit
- NH2: Creative individuals do not exhibit some of the attentional deficits that schizotypal individuals exhibit
- Q: If attentional differences are involved in both creative individuals and schizotypal individuals, are they attributed to the same underlying mechanism(s) or are they both presentations of other brain mechanisms?
- Q: Are these attentional differences behaviorally the same? If so, are they a matter of degree?
- To do: think of ways to disentangle IQ confounds from creativity assessments
- Q: out of the subjects that do not accomplish the test phase of the LI task, how many can repeat hearing while noise at all? How many do not recall? How many hear it but don't semantically process it?

## For reference: the SPQ

Scale 1: Open to the experience or the free thinker index of the Schizotypal Personality Questionnaire (SPQ)		Scale 2: Social introversion index of the Schizotypal Personality Questionnaire (SPQ)	
1. I am very imaginative.	11. I am very outgoing.	21. I am very socially confident.	31. I am very socially confident.
2. I am very curious.	12. I am very socially confident.	22. I am very socially confident.	32. I am very socially confident.
3. I am very creative.	13. I am very socially confident.	23. I am very socially confident.	33. I am very socially confident.
4. I am very original.	14. I am very socially confident.	24. I am very socially confident.	34. I am very socially confident.
5. I am very artistic.	15. I am very socially confident.	25. I am very socially confident.	35. I am very socially confident.
6. I am very imaginative.	16. I am very socially confident.	26. I am very socially confident.	36. I am very socially confident.
7. I am very curious.	17. I am very socially confident.	27. I am very socially confident.	37. I am very socially confident.
8. I am very creative.	18. I am very socially confident.	28. I am very socially confident.	38. I am very socially confident.
9. I am very original.	19. I am very socially confident.	29. I am very socially confident.	39. I am very socially confident.
10. I am very artistic.	20. I am very socially confident.	30. I am very socially confident.	40. I am very socially confident.
11. I am very imaginative.	21. I am very socially confident.	31. I am very socially confident.	41. I am very socially confident.
12. I am very curious.	22. I am very socially confident.	32. I am very socially confident.	42. I am very socially confident.
13. I am very creative.	23. I am very socially confident.	33. I am very socially confident.	43. I am very socially confident.
14. I am very original.	24. I am very socially confident.	34. I am very socially confident.	44. I am very socially confident.
15. I am very artistic.	25. I am very socially confident.	35. I am very socially confident.	45. I am very socially confident.
16. I am very imaginative.	26. I am very socially confident.	36. I am very socially confident.	46. I am very socially confident.
17. I am very curious.	27. I am very socially confident.	37. I am very socially confident.	47. I am very socially confident.
18. I am very creative.	28. I am very socially confident.	38. I am very socially confident.	48. I am very socially confident.
19. I am very original.	29. I am very socially confident.	39. I am very socially confident.	49. I am very socially confident.
20. I am very artistic.	30. I am very socially confident.	40. I am very socially confident.	50. I am very socially confident.