

Improving Passenger Safety through Information Design

Shmuel Bollen

**THE MOST
RECOGNIZABLE
VEHICLE IN NORTH
AMERICA**



A couple of quotes...

- ⦿ “Design is a funny word. Some people think design means how it looks. But of course, if you dig deeper, it’s really how it works.” (Steve Jobs 1993)
- ⦿ "The broader one's understanding of the human experience, the better design we will have." (Steve Jobs, 1995)



Statistics

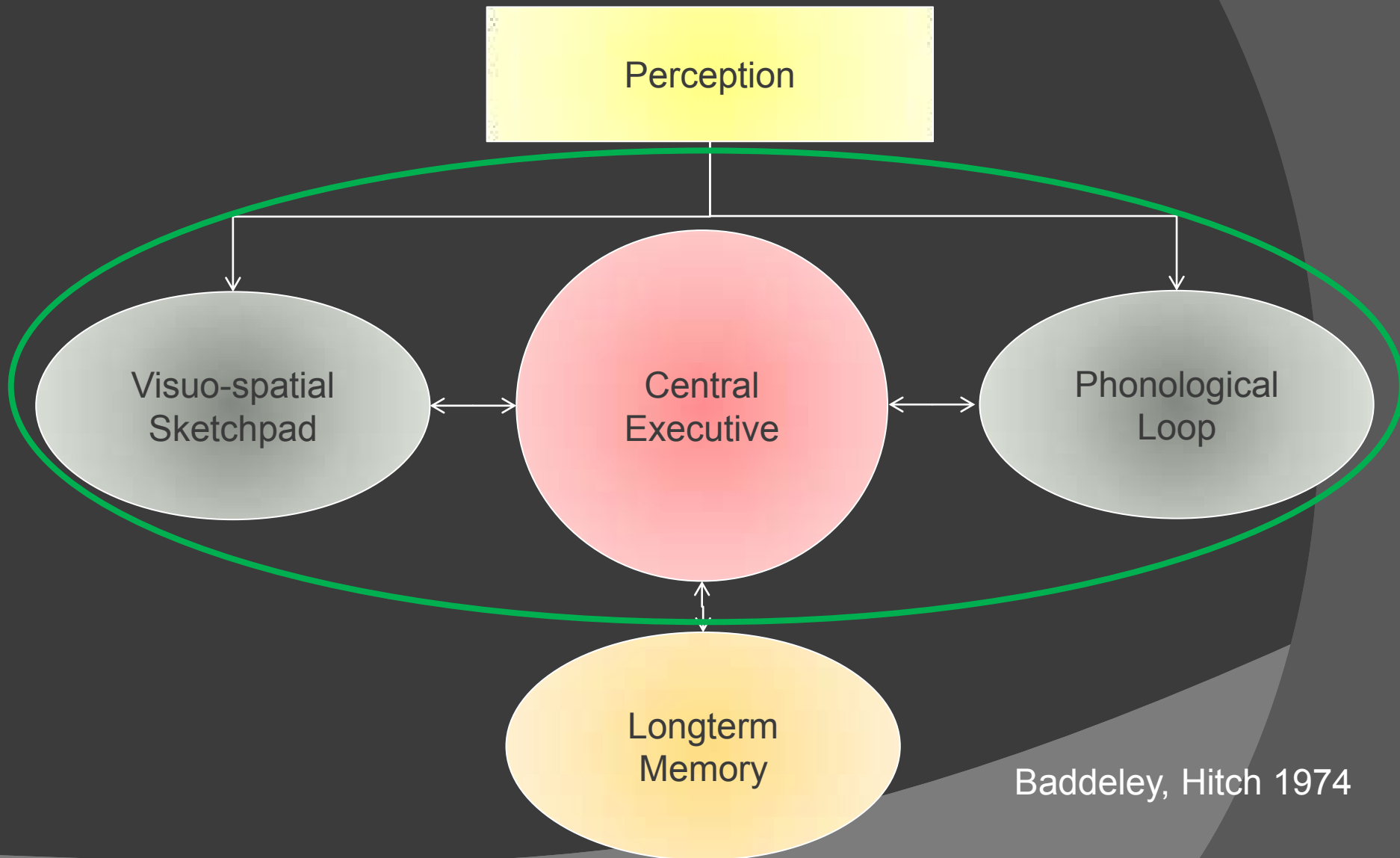
- 475,000 school buses on the road each day
- 26,000,000 children per day

- 13 fatal school-age pedestrian incidents per year

Attention management



Working Memory



Baddeley, Hitch 1974

How do these two
interrelate?







Attention management



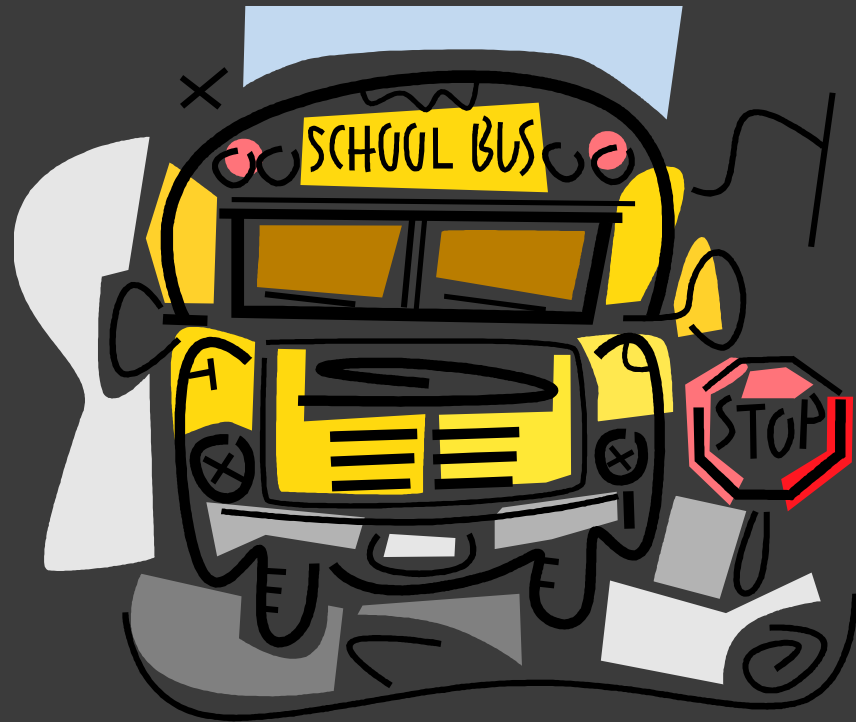
Attention management



Attention Management

- Brightness
 - Color
 - Font/Case
 - Size
- Just noticeable difference (JND)

The Most Recognizable...



The Most Recognizable...



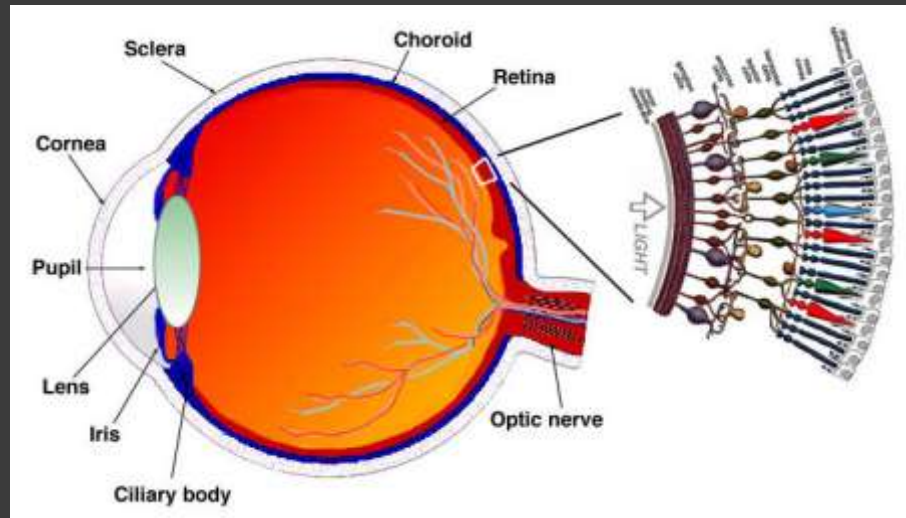
Are we applying the right signal to the key message?



Attention

- We can attend to one thing at a time
- Peripheral senses are broader, but the percepts can go unnoticed
 - Noise of a fan
- It's possible to attend to something that we are not looking at
 - locus of attention vs. focus
- It's possible to be looking at something but not attend to it
 - This means we can be staring right at something but not see it

The Central Fovea



Did you read it, or just see it?

- Users will skim to avoid cognitive exertion
 - Biological fatigue
 - Difficult fonts, styles, colors, improper case
 - Cognitive fatigue
 - Big words
 - Acquire/get
 - Amend/change
 - Identical/same
 - Unlawful/Do not



Sentence Case

IT IS LIBERATING, THIS KNACK WE
HAVE TO DISCOVER WHAT WORKS
BEFORE UNDERSTANDING HOW.

CERTAINLY, IT IS NICE TO KNOW THE
“HOW”. WHEN YOU KNOW AND
UNDERSTAND, YOU CAN IMMERSE
YOUR ENTIRE HEART AND MIND
INTO THE MATTER

BUT WHEN YOU EXPERIENCE THAT
WHICH YOU DO NOT YET
UNDERSTAND THERE IS SURPRISE
AND THERE IS WONDER. FOR
THAT MOMENT, YOU ARE SWEEPED
AWAY AND LIFTED OUT OF YOUR
LITTLE WORLD. YOU TASTE
FIRSTHAND THAT, YES, THERE IS
TRULY A REALITY THAT EXISTS
BEYOND MY OWN MIND AND
HEART.

It is liberating, this knack we have to discover
what works before understanding how.

Certainly, it is nice to know the “how”. When
you know and understand, you can immerse
your entire heart and mind into the matter

But when you experience that which you do
not yet understand there is surprise and
there is wonder. For that moment, you are
swept away and lifted out of your little world.
You taste firsthand that, yes, there is truly a
reality that exists beyond my own mind and
heart.

1. **■ walking along path
no more.**
2. **■ you can't see a house in
water, but you can't see
the boat.**

Williams, 1990

Split Attention

signal

signal



Pre-attentive processing

- The perceptual processing system is selective, thereby removing unnecessary redundancy, compressing the information signal, and organizing the scene as a whole.
- The driving force is to bring about closure or attach meaning to the sensory experience.
- This entire process occurs in milliseconds.

Pre-attention

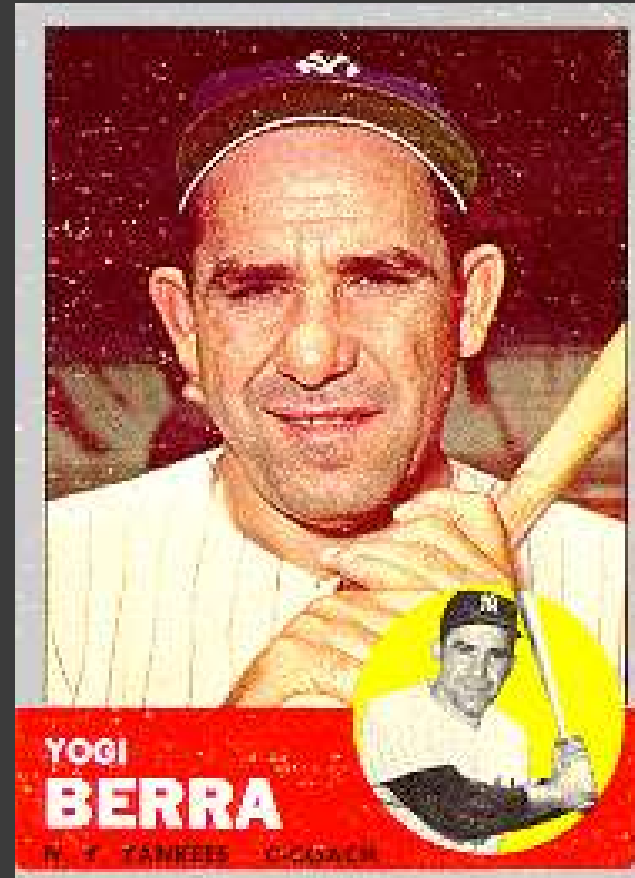


Complacency

- Jesse James says mine clearance "is pretty mundane and complacency is a worry. It is the same job month after month."
- How do we keep drivers from falling into this same trap?

Habit- The surrender of self

- ⦿ How can you hit and think at the same time?- *Yogi Berra*
- ⦿ What do we typically do when we encounter a vehicle with flashing lights?



Recommendation





Thanks!

Shmuel Bollen

bollen770@yahoo.com