

## TOPICS FOR PRESENTATIONS

### 1. **Perceptual Development:**

- a. **Hearing:** Argument for mandatory hearing tests. Normal hearing is necessary for language development. Undetected hearing loss could retard language development.
- b. **Vision:** Argument for mandatory vision tests. Certain visual deficits if gone undetected can result in permanent visual deficits (e.g., congenital astigmatism and strabismus).
  - i. Name: Travis McMurray
- c. **Importance of independent movement on depth perception.** Researchers believe that crawling is so important in structuring infants' experience of the world, it may promote a new level of brain organization by strengthening certain synaptic connections in the cortex.
  - i. Name: Brittany Wilder
- d. **Importance of experience on development of perceptual system:** How do you get the word out to parents and/or what toys may promote these experiences.
  - i. Name: Taquisha Joyner-Stokes
  - ii. Name: Kaitlin Mitchell

### 2. **Object Recognition:**

- a. **Pigeons as baggage screeners:** They don't get bored like humans doing such menial tasks and their visual systems are exceptional for object recognition.
  - i. Name: Holly Willis
- b. **Medical image perception** (e.g., Elizabeth A. Krupinski in *Atten Percept Psychophys* 2010;72 1205-1217): "At a fundamental level, this diagnostic process involves two basic processes: visually inspecting the image (visual perception) and rendering an interpretation (cognition). The science of medical image perception is dedicated to understanding and improving the clinical interpretation process."
  - i. Name: Marley French

### 3. **Attention:**

- a. **Inattentional or Change blindness in a real-world tasks** (e.g., sports, driving, speed dating; see Furley, Memmert, & Heller in *Atten Percept Psychophys* 2010;72 1327-1337): Inattentional Blindness "can be considered a limitation of the visual system, but it also highlights a critical aspect of visual processing, which allows us to remain focused on the important aspects of the world. But ... it is possible to induce an *attentional set*—for example, by sport-specific instructions—that leads to players' missing important game-relevant information."
  - i. Name: Eugene Hellings

### 4. **Perception of Movement or Action:**

- a. **Detect known terrorist** by the way they walk (gait) or by retina scan at airport.
- b. **Athletes:** What does the research suggest for those who want to improve their athletic performance?
  - i. Name: Chris Jaramillo
  - ii. Name: Jordan Bieber

**5. Perceiving Color**

- a. **How color affects taste and smell:** Useful for consumer product tasting and others specializing in food quality (e.g., chefs, parents trying to get little ones to eat).
  - i. Name: Keith Nasewicz
  - ii. Name: Zach Apostle
- b. **Color blindness:** problems that arise and solutions to them.
  - i. Name: Justin Bray
  - ii. Danielle Travis

**6. Touch:**

- a. **Importance of touch to blind people:** Suggestions to increase this experience. For example, Touch Town for Blind Children. In this town, blind children can touch and feel stop signs, shingles, traffic lights, etc., to gain a better understanding of everyday objects in their environment.
  - i. Name: Margie Pacher
- b. **The importance of a mother's and/or father's touch on infant and child development:** For example, research has found that massaging premature infants results in weight gain, more activity, more alertness, and ability for them to go home earlier. Another example, father's touch has been found to be especially important to the development of self-esteem.
  - i. Name: Adam Rawley
  - ii. Name: Cynthia Sauter-Vogelsong

**7. Audition:**

- a. **Hearing loss and aides:** Advances in our understanding of the auditory system has led to new hearing aide technology.
  - i. Name: Stacy Corak
- b. **Cochlear Implants:** The deaf and hearing community feel differently about cochlear implants. What is the argument and which side does the research perception seem to support and why? Are cochlear implants the solution to deafness? If so why? If not, why not?

**8. Language Perception:**

- a. Infants and children perceive language fundamentals (e.g., word meaning, grammar/syntax, prosody) long before they can use language: How can this knowledge be used by parents and others interested in language development?
  - i. Name: Melissa Jardine
  - ii. Name: Kenneth Lyon
- b. **Machine Speech Recognition:** Computers are not speaker independent language perceivers. Why haven't scientist been able to develop a computer that can recognize speech of any person that you or I can understand? What problems need to be overcome (e.g., lack of invariance)? Any suggests on how these problems may be resolved?
  - i. Name: Evan Rizzetto

**9. Audition & Forensic Applications:**

- a. **Earwitness Testimony:** What are the forensic problems with this type of testimony and how might knowledge of sensation and perception help solve these problems?
  - i. Name: Jami Worley
  - ii. Name: Karissa Narawski

**10. Vision & Forensic Applications:**

- a. **Eyewitness Testimony:** What are the forensic problems with this type of testimony and how might knowledge of sensation and perception help solve these problems? Warning – this presentation must focus on basic perceptual research and how research in this area can help increase our knowledge of what eyewitnesses can and cannot do accurately (what factors affect accuracy and why from a perceptual point of view).
  - i. Name: David Vos
  - ii. Name: Naquila Gregory

**11. Blindness:**

- a. Perceptual research leads to new technology for the blind that allows them to work in industry. Employers need to be educated in these advances in order to realize that blind people can be just as productive as sighted people.
- b. **Macular degeneration results in no central vision.** There is a new video headset that blocks out the hole of the damaged area and greatly improves vision.
- c. Implanting computer chips in the brain to improve vision?
- d. “Dogs blinded by an inherited retinal degenerative disease had their vision restored after treatment with genes from healthy dogs, marking the first successful gene therapy for blindness in a large animal. The treatment offers hope for humans with a similar condition.” (Cornell University, 2001)

**12. Vision Testing of Elderly for Drivers License:** Is the standard visual acuity test enough? If not, what else is needed and why? How would you implement these changes?

- i. Name: Helga Urlich-Vivar

**13. Human-Machine Interaction:**

- a. Designing Airplane Cockpits that improve pilots ability to get information that need quickly and accurately especially in a noisy environment (e.g., war, emergency situation).
- b. Designing computers or automobiles that are more human friendly. That is, are made to optimize human performance and this optimization has taken into consideration human perception.