

Vision Development
Activities for Human
Intelligence
ICBO 2006
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Vision Development Activities for Human Intelligence

- What are we talking about?
- When given this title, I had some concerns about the various terms and how they are understood by various audiences.
- So, lets look at these terms.

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Development

de-vel-op \di-'vel-əp\ – to cause to grow and differentiate along lines natural to its kind; or to go through a process of natural growth, differentiation or evolution by successive changes.

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“Development”

- Most of us readily acknowledge that people develop, but there is much less agreement about how or why.
- Some see human development as a genetically determined unfolding,
- while others see an environmentally mediated acquisition of abilities in a logical and reasonably consistent sequence.

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“Development”

- In this title and in many other contexts, the discussion of human development quickly turns to learning and intelligence.
- So, let's look at “intelligence.”

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“Intelligence”

- Many opinions that I hear give an impression that newer and better ideas have settled at least some of the many awkward issues related to “intelligence.”
- We like to think that modern research based on new definitions, larger studies, and more sophisticated statistics do a better job of defining, describing, or measuring intelligence.

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“Intelligence”

Any such impression is mostly

MISTAKEN!

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“Intelligence” and “Intelligences”

- Attempts have been made to replace the notion of a general intelligence factor (often labeled “g” and measured by IQ tests) by various theories of “multiple intelligences.”
- These theories of multiple intelligences have yielded only modest successes.

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“Intelligence” and IQ

- However the idea of and support for a general intelligence function (g) remains strong.
- IQ scores continue to show:
 - good PREDICTION ability,
 - high HERITABILITY,
 - significant GROUP DIFFERENCES, and
 - high STABILITY.

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“Intelligence” Controversies

- None of the intuitive criticisms of these qualities of IQ tests have yielded compelling research results.
- Please note that many of the common conclusions or implications drawn from these qualities are often not shared by the researchers who produced them.

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“Intelligence” Tidbit #1

- Consider for a moment the possibility that there is a general intelligence factor (g), and that it has a high survival value for humans.
- It might make sense for the biological basis for this intelligence to have some “homeostatic” mechanism that would tend to insulate it (g) from the vagaries of the environment.

Jensen A.R., The Limited Plasticity of Human Intelligence, The Eugenics Bulletin, Fall 1982

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Stability of “Intelligence”

- This stability, or “limited plasticity” of the general intelligence factor (as reflected by the general stability of IQ scores) could then resist unintentional, harmful forces of the environment, and ...
- It might resist, equally well, the intentional, benevolent forces we try to impose. Jensen A.R., The Limited Plasticity of Human Intelligence, The Eugenics Bulletin, Fall 1982

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Stability of “Intelligence”

- Of course this is simply speculation, but it is not at all unusual, and it seems prudent, for the organism to limit and protect the range of certain critical variables.
- What are the implications for our efforts to improve human “intelligence?”

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“Intelligence” Tidbit #2

- Let’s avoid defining “intelligence” for the moment and imagine that people implicitly think of “intelligence” in two different ways.
- One group might see intelligence as an **entity**, i.e. “an unchangeable internal characteristic.”
- The other might see intelligence as **incremental**, i.e. “malleable and can be increased through effort.”

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“Intelligence” and Performance

- Dr. Carol Dweck has “demonstrated empirically that students who hold an entity theory of intelligence are less likely to attempt challenging tasks and are at risk for academic underachievement.”

Plucker, J. A. (Ed.), (2003), Human intelligence: Historical influences, current controversies, teaching resources. Retrieved Feb. 10, 2006, from <http://www.indiana.edu/~intell>

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“Intelligence” and Performance

- “In contrast, students who have an ‘incremental’ theory of intelligence are not threatened by failure.”
- They believe that their intelligence can be increased through effort and persistence.
- They set goals and seek challenges that they believe will help them to grow

intellectually. Plucker, J. A. (Ed.). (2003). Human intelligence: Historical influences, current controversies, teaching resources. Retrieved Feb. 10, 2006, from <http://www.indiana.edu/~intell>

“Intelligence” and Praise

- Dr. Dweck has also, “Provided evidence that praising students for their intelligence has the potential to limit their intellectual growth.”
- “When kids were praised for their intelligence they didn’t want a challenge afterwards. And when they hit difficult problems, their enjoyment crashed, they thought they weren’t smart anymore, and their performance on the IQ test plummeted.”

Plucker, J. A. (Ed.). (2003). Human intelligence: Historical influences, current controversies, teaching resources. Retrieved Feb. 10, 2006, from <http://www.indiana.edu/~intell>

Intelligence????

- Every notion of what human “intelligence” is, or how to measure it brings with it great controversies that are unlikely to be resolved.

Intelligence????

- Every notion of what human “intelligence” is, or how to measure it brings with it great controversies that are unlikely to be resolved.
- Take whatever position you personally prefer, but realize that there is strong opinion and evidence that you are

Intelligence????

- Every notion of what human “intelligence” is, or how to measure it brings with it great controversies that are unlikely to be resolved.
- Take whatever position you personally prefer, but realize that there is strong opinion and evidence that you are

WRONG!

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“Vision”

- Some years ago an optometric publication ran an article about what terminology optometrists should use to describe their profession.
- Should we be:
 - Vision care professionals, or
 - Eye care professionals?

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Vision Care

- The best response seemed obvious to me.
- I chose Optometry as a profession based on a model provided by people like Skeffington and Bruce Wolff that depicted vision as a very powerful and far reaching factor in human behavior.
- Comments like, “Vision is the total action system,” drew me to the profession.
- (Many more years passed before I could really appreciate those comments.)

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“Eye Care”

- One opinion expressed very strongly in the article argued that we should promote ourselves as eye care professionals because vision was much too limited.
- It was one of those occasions when I could read all the words in a relatively simple English sentence and could not make sense of it.

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Vision =

- I was completely flummoxed by his comment until I realized that...
- ... his statement could make sense if he was equating "vision" with visual acuity.
- At that point I could agree with the writer that a Visual Acuity Care profession would be very limited.

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Defining Vision

- I suspect that most people in this room have gone through one or more revisions in their concept and definition of vision.
- It's also possible that many of the problematic issues in the world of "intelligence" find parallels in the world of "vision."

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vi-sion \ˈvɪz-ən\

- Could we view "vision" as a single, general factor (v)?
- We might even look at whether it has:
 - good PREDICTION ability,
 - high HERITABILITY,
 - significant GROUP DIFFERENCES, and
 - high STABILITY.

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Vision(s)

- Maybe it should be viewed as multiple visions such as:
 - Sports Vision,
 - Color Vision,
 - Binocular Vision,
 - Learning Related Vision,
 - Ambient Vision,
 - ...?

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Tidbits

- Consider for a moment Jensen's speculation about the survival value of "intelligence" and the desirability of some stability mechanism.
- Does "vision" have a high survival value for *homo sapiens*?
- Wouldn't stability of "vision" also be desirable?

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Tidbits

- What are the implications for our programs of therapy if this stabilizing mechanism that might resist unintentional, harmful forces of the environment, also ...
- resisted, equally well, the intentional, benevolent forces we try to impose?

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Tidbits

- And what about Dweck's findings? The more people thought of intelligence as an entity the more likely they were to underachieve.
- Could it be that when people see "vision" as an entity they are less able to imagine changing it through their efforts?

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Nouns

- When we use a noun, we create an entity – a "thing."
- We also engender a need to measure and dissect this new "thing."
- These constructions can have productive uses, but
- they can also leave us with intractable problems.

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Nouns

- We can see examples of this with the nouns “intelligence” and “vision.”
- They set artificial boundaries which limit our thinking and exploration.
- We are easily seduced into forgetting that our measures of intangible “things” like intelligence and vision are arbitrary and full of assumptions.

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Adjectives and Adverbs

- We can avoid some of the difficulties and misunderstandings surrounding the nouns “intelligence” and “vision” by using them as modifiers of things and acts that are more tangible or observable.

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Adjectives and Adverbs

- Consider:
 - an intelligent decision,
 - behaving intelligently,
 - driving intelligently
- (on the RIGHT side of the road.) ☺

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Adjectives and Adverbs

- What about:
- visually directing,
- visual acuity,
- visual discrimination,
- the visual process.

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Adjectives and Adverbs

- These terms are more open-ended with respect to what “intelligence” is or what “vision” is.
- We don’t have to know the limits in order to explore the possibilities.
- And so, the full title of this topic is:

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Activities to Develop the Role of the Visual Process in Intelligent Human Behavior

Our Goal

- What do we want these “Activities” to help this child become?

An Independent Learner

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Our Means

- How do we expect the child to achieve this goal?

**Through Constant Growth
and
Development**

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Our Assumptions

- The primary purpose of the visual process is to direct action.
- The visual process is a pervasive aspect of human behavior.

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Infants

Google Search on "Infant Stimulation"

- <http://www.envisagedesign.com/ohbaby/smart.html>
- <http://www.geniusbabies.com/preinstim.html>
- <http://www.geniusbabies.com/wimintoy.html>
- <http://www.preksmarties.com/babies/>
- <http://www.babyeinstein.com/>

This is merely a sampling and is by no means an endorsement.

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Infants

- Lots of high contrast pictures and materials are available.
- Some provide an interesting commentary on modern life.
- Consider this example:

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Car Seat Toy- The Car Seat Gallery, by Wimmer Ferguson- will make traveling in the car more enjoyable for a young passenger. This toy is easily installed (for BOTH front and rear facing infants) and features ten double sided cards that are displayed and stored in four clear plastic pockets. The cards are comprised of twenty research-correct graphics (ten in black & white, and ten in color) that can easily be changed and interchanged, providing a wealth of visual stimulation.

Developmental Value: Encourages visual activity (scanning, focusing, tracking, orienting and pattern recognition.) Age - birth and up \$15.95 USD

Downloaded from: <http://www.geniusbabies.com/preinstim.html>

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Recommended Use

- Someone using this toy should consider:
 - that maybe they are spending too much time in their car,
 - the value of restricting the infant's/child's movement for prolonged periods,
 - the interest value of 2-dimensional, dumb pictures that you can't even get in your mouth.

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Recommended Alternative

- Now, here we have a mother who is properly prepared and equipped to stimulate fixation, ...
and visually guided grasping



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Activities

- Active
 - Movement
 - Directed action

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Activities

- Exploratory
 - Inviting
 - Textures
 - Get their hands on it
 - Get their mouth on it
 - 3 dimensional
 - To be manipulated,
 - And tossed
 - And dropped

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Activities

➤ Play

- Interactive
- Flexible boundaries

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Visually

- Purposeful Fixation
 - Anticipate
 - Select
 - Observe
 - Plan
 - Direct
 - Monitor
- Tracking
 - Fixation in motion
 - Stability

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Intelligently

- To understand
 - Plan
 - Initiate
- Fail
 - Evaluate
 - Re-direct

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Children

- This is where the fun comes in.
- This is also where we tend not to provide enough
 - self-generated,
 - self-directed movement.
- This is where we screw it up.
- Comments on mother's role.

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Activities

- Calendar
 - Something to look at
 - Can be manipulated
 - Days numbered sequentially
 - Past, present, and future

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Maps

- “Measuring”
- Floorplans
- Trips

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Time

- Timer
- Stopwatch
- Clock

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Moving

- “Look where you are going.”
- Explore variations
- Get out of the way – give them a way to do

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Speech - Communication

- Universal first word/gesture

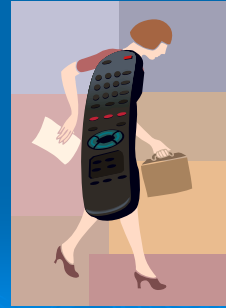
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Speech - Communication

Universal, voice activated, remote control device

- Two models
 - Mother
 - Father



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A brief note on cards

- If there are no objections (religious type), playing cards can be a great way to develop a variety of visual skills.
- You have a limited universe (52 cards) that can be ordered in a variety of ways (color, suit, etc.)
- Despite the limitations, chance and probability reign.
- Barry Cohen's game of "Spit" is excellent example. Rules available from barney24@gmail.com

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Summary

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What do we want the visual process to do?

- What qualities of the visual process do we want to engage?
 - Looking – an active, directed selection
 - Anticipation - looking ahead
 - Direct action - guide movement
 - Monitor – the specious present
 - Evaluate errors – looking ahead compare similarities and differences
 - Re-direct

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The End

Thank you for this opportunity!

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