Indirect effects of culture on behavior. Because the ultimate goal is for children to be: “productive members of society.” We have to consider how society can impact children’s development.

Vygotsky’s Theory of Cognitive Development

- Zone of proximal development - what you can do with help.
- Scaffolding - the help
- Private speech - the help you give yourself.

Basic Features of the Information-Processing Approach

- People and computers are both symbol processors with hardware and software.
- Hardware includes sensory, working, and long-term memory.
- Software is task-specific (and let’s face it, the implementation is for one kind of hardware).

Basic Features (cont)

- Not stages! Our operating system works continuously and develops gradually, piece-by-piece. There are no abrupt changes in thought. Even though behavior might be.
- Piaget talked of insight, but information processing people talk of continual, gradual change and learning.

Hardware looks like this

Information Flow

- Sensory store holds raw sensory input.
- Short-term store processes and holds information for several seconds.
- Primary memory and working memory are other names for short-term store.
- Long-term store (vast and relatively permanent storehouse of information)
- Executive control processes (metacognition) are involved in planning and monitoring what is attended to and what is done with the input.
Short Term is Short

- Short term memory is the mental scratch pad that lets us organize and find a system to store things in Long-Term memory.
- The advantage is it can hold a lot, the disadvantage is that it is temporary.

5 Changes in Processing

<table>
<thead>
<tr>
<th>+Strategies &amp; +Experience</th>
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</thead>
<tbody>
<tr>
<td>+Capacity</td>
</tr>
<tr>
<td>+Inhibition &amp; +Executive Control</td>
</tr>
<tr>
<td>+Automatic Processing</td>
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<tr>
<td>+Speed of Processing</td>
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</tbody>
</table>

Short term gets more experienced with age

- The development of strategies (deliberately implemented, goal-directed operations used to aid task performance)
- Think of a network of lots of facts.
- Early: fewer facts and fewer connections.
- Later: lots of facts lots of connections.

Short term memory gets larger with age

- Development of the short-term store
  - Span of apprehension (number of items that people can keep in mind at any one time)
- First graders: 2.5 digits
- Fourth graders: 3 digits
- Adults: 3.5 digits

+Inhibition & Executive Control

- Can inhibit distractions.
- Better at planning and flexibly implementing problem solving (Executive Control).
- All linked to development of the Frontal Lobe.
- What children know about thinking, meta-cognitive awareness, develops gradually during childhood.

+Automatic Processing

- Older children execute more processes automatically.
- Implicit memory - don't have to think about it.
- E.g. don't have to worry about reading the words, just thinks about their meaning.
+Processing Speed
- Changes in processing speed
- 4 year olds are 1/3 as fast as us.
- 8 year olds are 1/2 as fast.
- Biological maturation is primarily responsible for age-related differences.
- Increased myelination in the associative areas of brain
- Although past experiences can influence processing speed within particular domain.

Core-Knowledge Approaches to Cognitive Development
- Each child develops distinct domain-specific conceptual structures reflecting experience: Physics, Biology, Psychology etc.
- Their are core modules -- specialized parts of the brain that help us process specific types of information.

Physics 101!
For infants!
- Objects can’t go through walls! (Spelke)
- One object hitting another will make it go! (Kotovsky)
- Objects can’t float in mid air! (Baillargeon)

Physics Phacts!
- Objects can’t go through walls! (Spelke)
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Biology 101
- Animals can grow! (Rosengren)
- Animals have blood in ’em!
- Animals have parents!
- Animals can be healed!
- Animals move on their own! (Gotfried)

Psychology 101: Mind reading for infants!
- Theory of mind (2-5yrs).
  - 2yrs – desire.
  - 3yrs – mental worlds.
  - 4yrs – False Belief tasks.