PSYC2500, Oct 11/13
Developmental Psychology

Core-Knowledge Theories
- some forms of knowledge are so important for survival that learning of these is simplified

Understanding Objects and their Properties
Understanding Living Things
Understanding People

Naive Theories:
- for example, asking an adult who does not have an engineering degree, what their understanding of physics is

Understanding of Objects and Their Properties:
Renee Baillargeon
- professor in Illinois; looks at babies (3-4 months old); developed a procedure using habituation
- habituation to reexamine children's object permanence (ability to predict whether objects that disappear will reappear in a predictable fashion)
- **argues that children's core knowledge is a principle of continuity (children have an understanding of continuity in time and space)**
- the basic knowledge of babies that we are born with is this principle of continuity
- if this is true, then Baillargeon argues that very young children will be surprised when objects do not obey that principle
- Baillargeon says Piaget's methods were accurate, but that they were not sensitive enough to understand very young children

Violation of Expectations Method:
- **Piaget says that symbolic thought is only possible if you have a representation; Baillargeon says that yes, they have a representation, even if it is not sophisticated; it becomes more sophisticated w/time**
- **Children's undetstanding of containment:** if you put an object in a box, when you take it out of the box, should you expect it to be the same? If in a transparent box, should you still see the objet or not?
- Children encode only certain features
- Transparent box: child will not be surprised that the object is not visible. Even at 12 months of age, if you take a box and place a doll
- There are certain features that babies do encode, while others they do not
- **B: Piaget might have been wrong in understanding kids; they are able to have expectations of the world, but those expectations are very much limited in their way to encode the variance of those objects. B argues that encoding develops progressively; allows them to have a notion of continuity in time and space.**
- If this violation of expectations research is done on 2 months old, it doesn't work very well; their representations are so basic that they are unable to do this type of work
- B says core knowledge of the world is so basic that it needs to be developed

Our Naive Understanding of Others:
- between 3 and 5, massive development in children's reasoning and thoughts about others

- 3-year-olds: if shown something and they have an expectation about that something
  Ex: ask 3-year-old what is in the box of smarties (says smarties), show them that it has balloons in the box, now the 3-year old thinks there are balloons in the box
- by 2, children begin to understand that behaviours are intentional (parents say that, at this age, toddlers say "I want" -- understand that their desires will provoke their behaviours
- by 3, start using language like, "I believe", "you believe," "you think" -- a basic understanding of thinking and beliefs. This basic understanding of beliefs (present vs past) is fused into 3-year-olds
- by 4/5, what I believed in the past vs what I believe now is very clear in the children's mind
- that understanding of people is very popular right now
- can children inhibit behaviours? 3-year-olds have difficulty inhibiting behaviours; even though they might know rules are different, they will behave in the way they initially learned how to behave

- the reasoning skills of a 3-year-old will not be the same as those of a 4.5 year old
- children are quite vulnerable to suggestions about the world; they will encode those representations and they will become part of their memory of events

Theory of Mind:
Individual Differences and Inhibitions (ch 6)

Chapter 7 – continuation of children's cognitive development
Cognitive Processes and Academic Skills

1. Memory
2. Problem solving
3. Academic skills

- in order to memorize, you have to have some sort of representation
- a common theme: when we talk about representations, we have to remember it as a construction
- we encode features of what is out there and represent those features in memory
- the key question for researchers: **what is the nature of those representations? When we retrieve those representations, can we modify them?**
- If infants create an associatoin between 2 events, will they remember it?
- How to make 3-year-olds learn something?

Researchers note a base line – for ex: look at children's kicking behaviour (its frequency); then, once they attach the ribbon to the mobile, will there be a change in the rate of kicking?

- key feature – need a base line; does the baby kick a lot before the ribbon is attached to mobile

Research of Carolun Rovee-Collier:

- rate of kicking is increased when ribbon is tied to the mobile; maintains a higher rate of kicking for 2 days. Then it is gone. But is the assocation completely gone, or is it a problem of retrieval?
- Give the baby a cue / prop; Rovee-Collier starts the mobile moving and, with that cue, the rate of kicking goes back up
- over 2 weeks, can't retrieve the memory without a prompt
- making associations in learning occurs even in 3 months

Even very young, children very young have the ability to represent events and to make associations to learn.

- starting at age 2, 3 or 4, if we are forced to remember something, will we use strategies? If so, are those strategies efficient?
- Prior to age 5, present children w/a collection of objects. A child could help to remember by sorting them out. Or can rehearse (ex: I have a cat, dog, and a cow.) Once you have organized them, you can then rehearse. Children to not do any of these things; they don't use any strategies that we know might help memory. However, if you ask those kids before they remember how many things they remember.
- **Prior to age 5, children will overestimate their memory (will think they will remember them all)**
- with 5 and 6 year olds, researcher has a list of things that need to be learned (pictures of objects), every time shown a new picture, want children to remember name of it. Tells the kid to repeat the name of the object once or more times. The 5/6 year old will rehearse. When the child is 7/8, the researcher still found that the 7 year olds remembered more than the 5 year olds. How can this be if rehearsal was used by both groups of children?
  - **5 and 6 year olds do not rehearse the same as 7 and 8 year olds**
  - older children will rehearse the 2nd picture along with the 1st one; more of a complete rehearsal; cumulative
  - **one of the basic findings for strategy use: prior to age 5, children to not use strategies. When they do use strategies, are not effective/resourceful as the older kids are.**
  - But can we teach 5 and 6 year olds to become better? Yes; can tell the kids how to remember things better.
  - Young children become very good at the task we use to teach them. Then when we present them with a novel task, they do not generalize (apply strategies that works so well – not there yet)
  - **older kids will use a greater variety than younger kids –** rehearsal is a basic one; organization is another. **If you organize what is to be remembered, you create multiple entries to retrieve that information.**

Organizing the material to be learned facilitates retrieval

Chunking – if you can chunk info together, it helps you to encode that information and store that information in long term memory. The chunk will help you retrieve that information and its relations. **Children do not use chunking until 9 months of age.**

Elaboration – even adults, without being taught about elaboration, rarely use elaboration. Elaboration is embellishing memories.

5-year-olds over estimate their memory. In the 80s and 90s, people named the ability to reflect on your own use of your strategies '**metacognition**.' it is the ability to reflect on your own behaviour to see whether or not you are efficient in your use of strategies. **Now it is called executive functioning – are the children able to regulate their own behaviours?**

Many children will persevere with one strategy even if it is not effecacious. Older children (9 years old) **can generalize;** just depends on their willingness.

In the 90s, what we know is that what we know influences what we remember (the knowledge that we already have encoded into our longterm memory influences how much we can learn.) Young children remember less than older children.

The ability to encode information, the richness of encoding, is directly related to how much prior knowledge you have (this is with adults, not with little kids.) By kids' very nature, they know less

than we do.

Mickey Chi, 1978:

- looked at knowledge and memory; took children and used the basic digit span task (remembering numbers); the children are old enough; Chi shows that 10-year-olds know less than adults
- effects of knowledge on memory: adults remembered more than children did. But a representation is not a direct image; we encode image, transform it, and construct a memory.
- Facts can be represented as a network; it is easier to retrieve information if it is very rich.
- 3 and 4 year old kids who have a greater vocabulary base when they start will have an easier time learning words than those wih a poorer vocabulary

Mickey Chi argues that for events that are familiar, we create scripts in our minds. Our memory is built in such a way that we have slots for parts of the event. Ex: asking 5-year-olds to tell a story about birthday parties – most bday parties in our region occur in a similar fashion.

As children experience the world, they begin encoding features of the world. When you encode a new event, it is easier to remember that event because the slots are already there in memory. **Scripts facilitate encoding.**

Autobiographical memory – how do we remember events of our lives? How does story telling evolve over time?

Most people will not remember anything prior to age 2. From 3 to 4, most often, children will have their first memory. **There are cultural differences:** in Asia, they might remember memories at an older age.

The fact that we don't remember much prior to age 2: **called infantile amnesia.** Why can't we remember much prior to age 2?

One hypothesis – that oral language has not yet developed or developed sufficiently to help encode information in memory.

People who do not have much memory of their autobiography might not have encoded that information, but they might have a rich mnemonic system for factual information.

Fuzzy trace memory – the specificity of the encoding you make; argument: by the teenage years, people will encode the gist – less rich representation of the event.

The Justice System – the way we interrogate adults is similar to the way we interrogate children; leading questions might alter the way children remember the events.

Steven Ceci – works on eye witness testimony and the suggestibility of very young children

- children can be reliable but interrogation can alter their memories
- susceptible to suggestibility
- Ceci argues that very young children are poor at source-monitoring (knowing where info comes from)
- have to be careful with the wording we use when we question children
- Ceci worked as an expert witness; when he heard about the case (in which the little girl said she saw the man wash the blood off his hands), he realized that the mother of the little girl who was the witness was stereotyping the behaviour of that man (the little girl had expectations potentially that that man was not very good.)

Sam Stone Study:

- interested if we could take a child who didn't have an experience but convince them that they did
- ex: did you get your finger caught in a mouse trap?
- Will remember the image they created the week before, despite not having experienced getting their hand caught in the mouse trap
- **leaves an imprint in the memory; creates problems re: source monitoring**

Mickey Chi
- looked at children's representation of events
- argues that for events that are familiar, we build scripts in our mind
- we have slots for parts of the event
- ex: Bday party

Sometimes memories are facilitated due to pictures, momentos, when we talk about them with family. Typically, most people won't remember anything until age 3 (infantile amnesia)

- Children's narratives are initially built through conversations with others
- the richness in the encoding you make is greater when you talk about it with others (usually w/other adults)
- in Korea and Japan, parents do not reminisce about the day's event as much as we do

Problem-Solving
- little kids not as good at problem-solving as bigger kids, bigger kids not as good as teenagers, teenagers typically just as good as adults
- little kids encode less information (Piaget); focus on certain dimensions; encode certain features of problems and focuses on those aspects only
- as working memory increases, children are more flexible, able to encode more information

Scientific problem-solving:
- little kids can show some evidence of it, but not really; adults not very good at it generally
- can be trained to become good at scientific problem-solving
- generally, when asked to solve a problem using the scientific method, the layperson would confound variables, draw conclusions that might not be valid from approach
- Scientific problem-solving can be taught, it can become a way of thinking and generalized, but only at teenager age
* more details in text book

Academic Skills
- reading/ writing / knowing and using numbers
- reading: in the 80s, the whole word approach used in the Western world (M-O-M spells MOM) -- argued that phonics did not teach children how to read; children learn language by being exposed to a very rich linguistic environment
- Phonics: each letter roughly represents a speech code