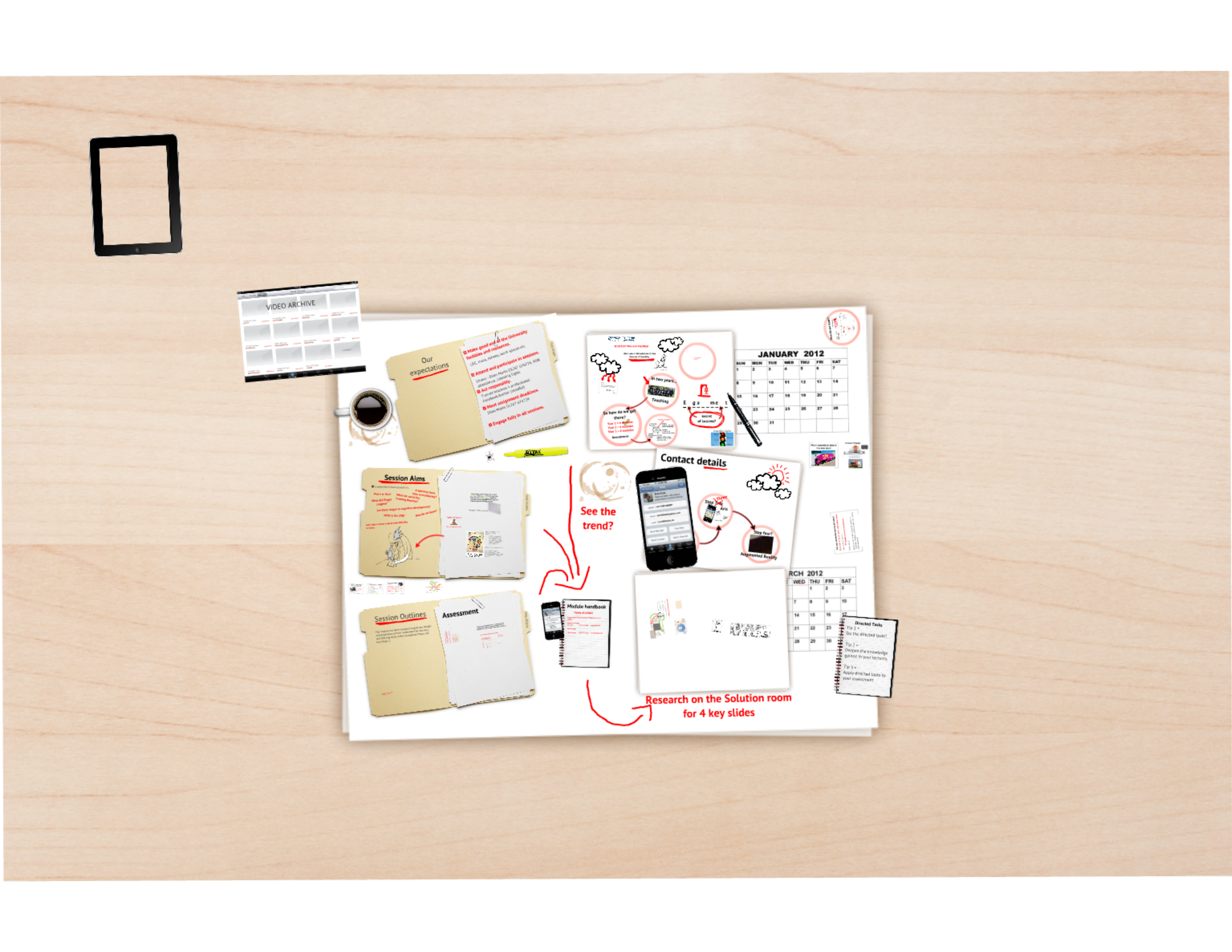

VIDEO ARCHIVE
Our expectations
JANUARY 2012
Session Aims
Contact details
See the trend?
Session Outlines
Assessment
Module handbook
Research on the Solution room for 4 key slides

Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

Yr Athrofa
Institute of Education
Addysg i Gymru Education for Wales

ECAD4007 Who am I teaching?

Who's who 1: Introduction to Key theories of learning



Tom Cox

Session Aims

- [x] Consider the following questions...

What is an MKO?

Is learning more than remembering?

What are some key learning theories?

What did Piaget suggest?

Are there stages to cognitive development?

How do we learn?

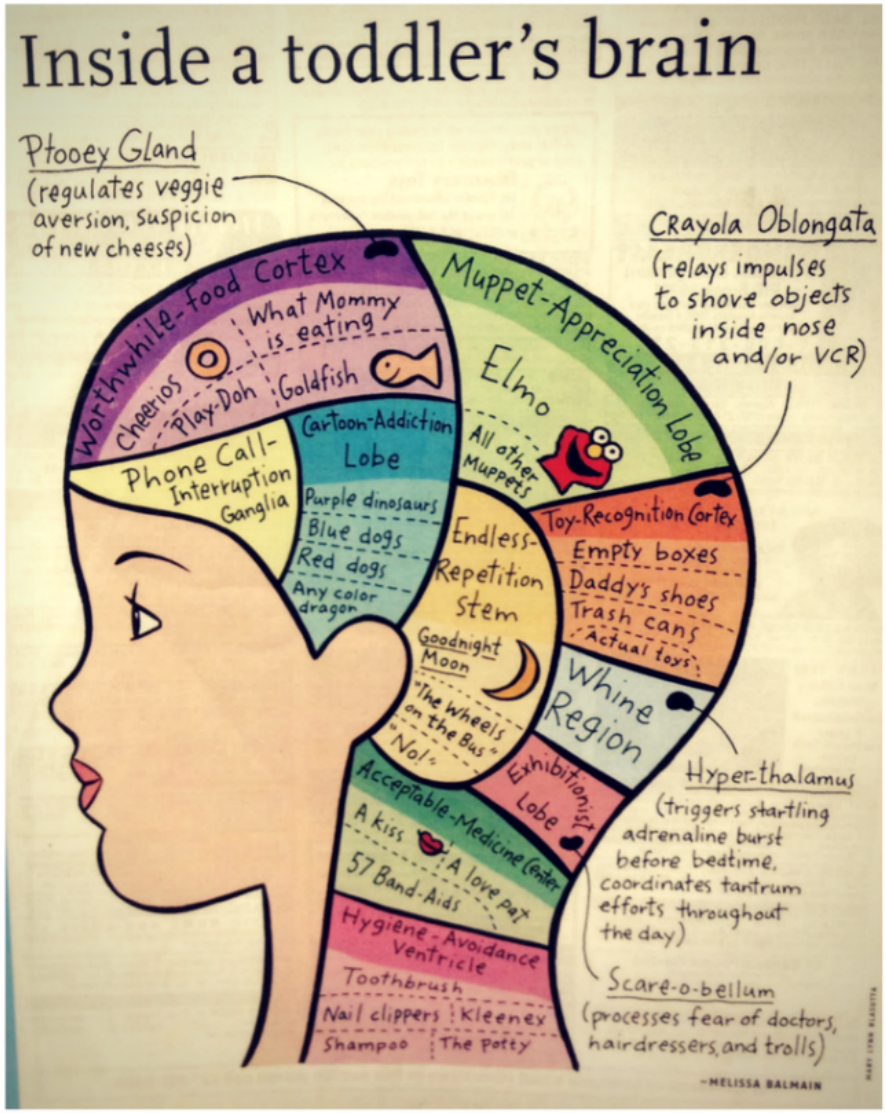
What is the ZPD?

...YOU like

Cognitive development?



What might we be talking about here?



WHAT IS COGNITIVE DEVELOPMENT?

Cognitive development means how children think, explore and figure things out.

It is the development of knowledge, skills, problem solving and dispositions, which help children to think about and understand the world around them.

constructing a mental model of the world.

Cognitive development is the construction of thought processes, including **remembering**, problem solving, and decision-making, from childhood to adulthood.

Is learning more than remembering?



Shall we play a game?

Thick wall it tea of Myrrh seize knots trained

Spend a few moments trying to remember the above group of words.



Learning and memory



contents structured
Lifetime

easily displaced
secs!





Once information is passed into LTM, unless it is used or recalled in some other way, it is again forgotten.



Brain judges it of no use...throws it out!

Make sense to learner

Info must be processed and structured

LTM



STM

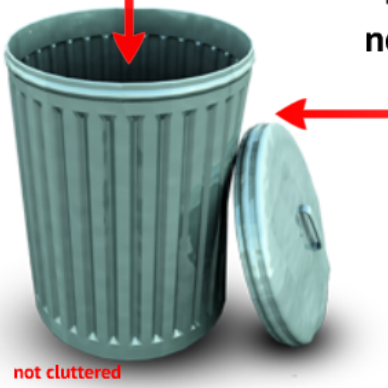
majority info stored/processed and...

other senses

New info given too quick
not enough time to process
so...



Thinking



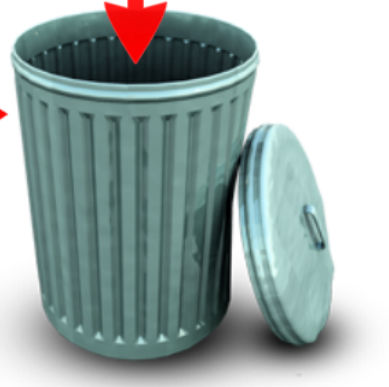
not cluttered

Forgetting



not under direct conscious control

Aim = only retain useful info that it comes across regularly



Forgetting

Learning and Mem



ntents structured
Lifetime

easily displaced
secs!

Make sense to learner

Info must be processed
and structured

LTM



STM

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stored/processed
and...

New info given too quick
not enough time to process
so...





Make sense to learner

and structured

M

S



majority info stored/processed and...

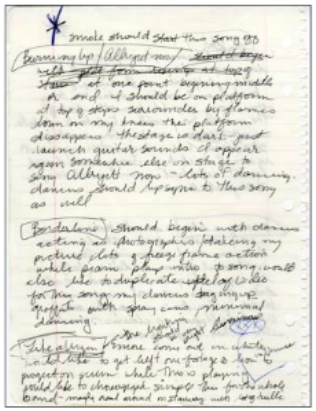
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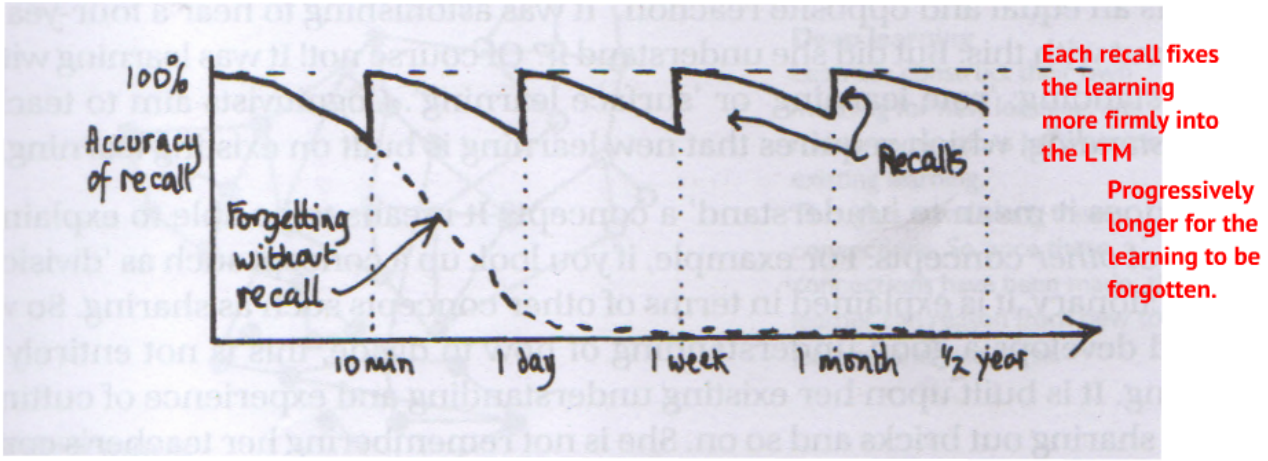
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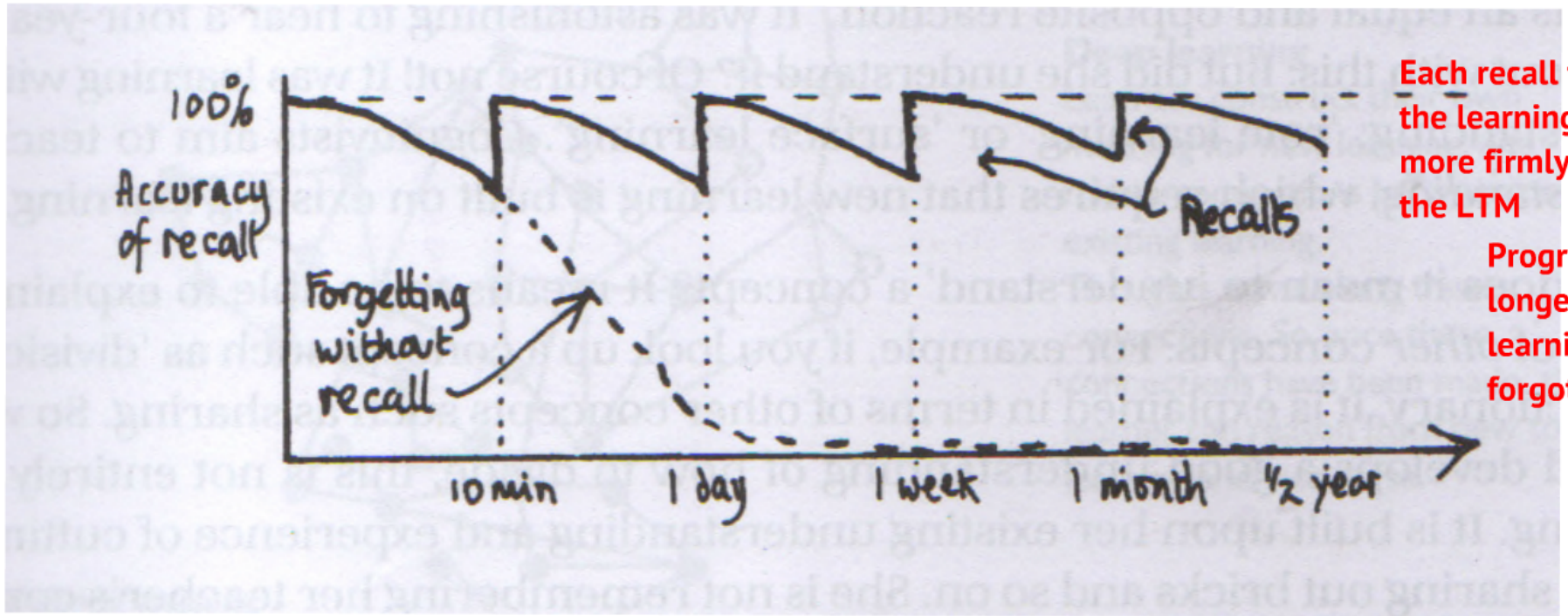
So how do we ensure our children don't forget what we teach?

Repetition

We must ensure that information is recalled and used frequently.



J.B Watson = Remembering depended on "frequency and recency"



J.B Watson = Remembering depended on "frequency and recency"

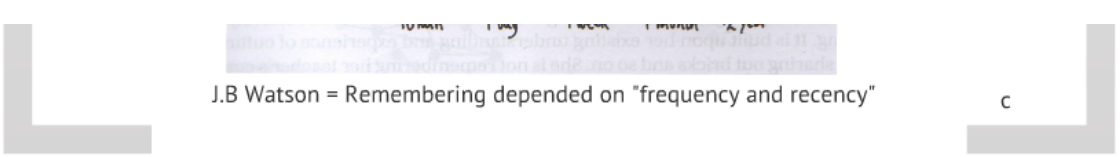
Are there any exceptions to this thinking?



Emotional significance



There are exceptions…that one off memorable experience!



Our knowledge of memory suggests the following:

- Don't cover new material too quickly
- Slow down
- Leave a silence after an importance sentence
- Children need activities which encourage them to process new material.
- Allow children to use and personally restructure the information
- For information to be stored in LTM it must be recalled and used often

How do we learn?

How do we learn?



t

Let's take a closer look at how YOU like to learn.



Desert Assignment





Imagine you must travel entirely alone, in a Land Rover, from A to B on the map. 100's of miles across the Sahara Desert.

In order to survive you must learn one skill.



Practical skill

You must be able to dismantle, clean and reassemble the carburettor.

It is a matter of life and death that you learn effectively!

How would you want to learn this skill?

You may choose any and as many learning experiences you like…no expense spared!

Explanation (listen to a teacher explain)

Reading (relevant reading set)

Test (Simple or realistic, marked by teacher)

Class practical or exercise (Practice under supervision)

Note-taking (Notes or handouts given to provide permanent record to refer to during trip)

Demonstration (watch a teacher show how it's done)

Question and Answer (ask questions to teacher)

Watch a video (includes content on location in Sahara)

Summarising (given summary of most important aspects)

Investigation (explore the topics for yourself)

Role-play (take part in realistic simulations – even in a desert!)

Others?



What order do you want them?

To learn how to clean a carburettor



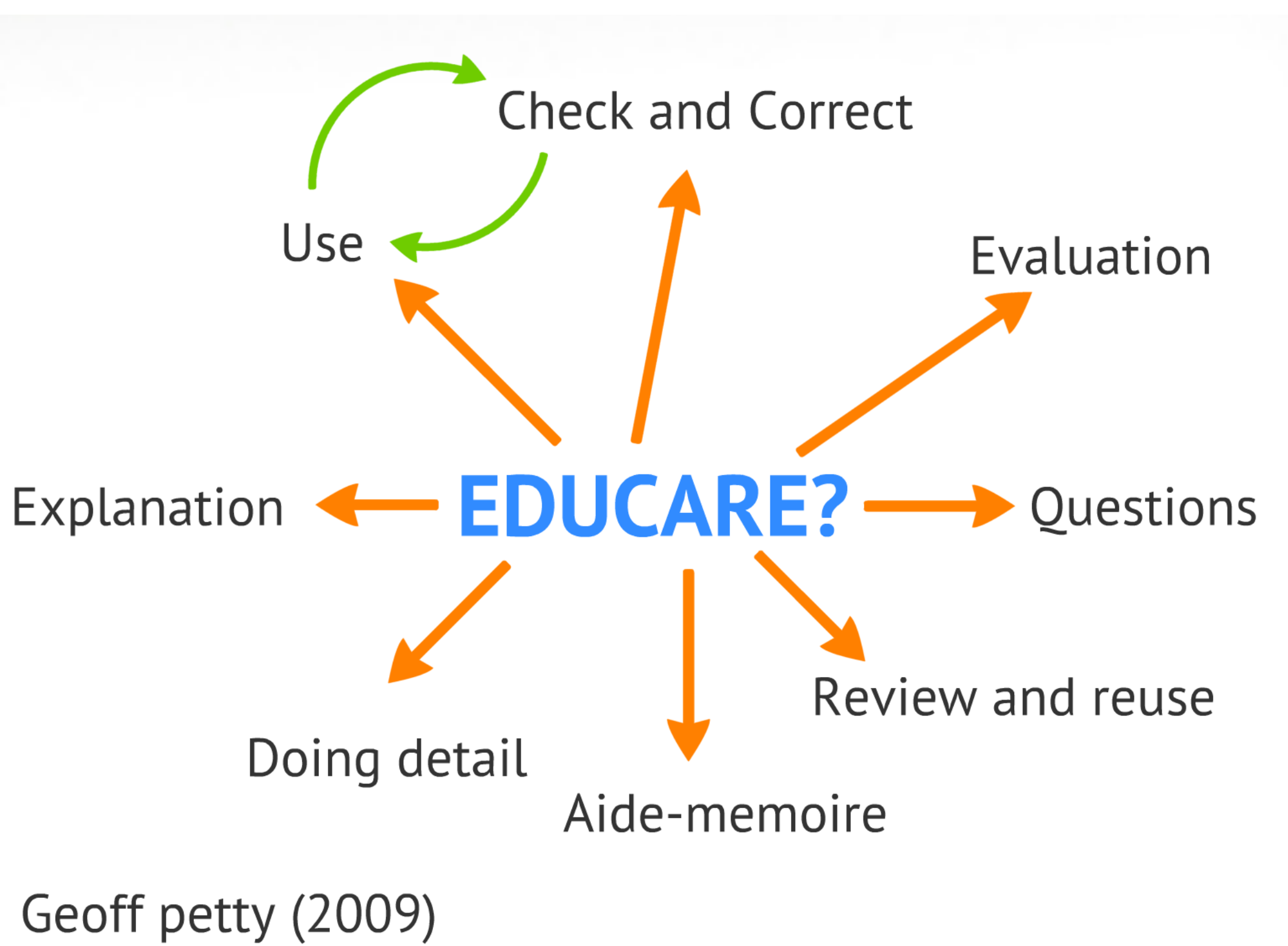
1) Explanation – Function/ where it is/ how it works/ plenty of visual aids and specific handouts (Land Rover). **Understanding**

2) Demonstration – Removal/ dismantling/ cleaning/ reassemble/ notes with warnings and tips and hints. **Actively working it out for themselves**

3) Class practice – Do 2) themselves under supervision. **Doing-detail**

4) A realistic field practice test – In desert, unsupervised/ assessed by teacher (emergency support please) **Skill evaluated**

We all have learning NEEDS…which must be met.

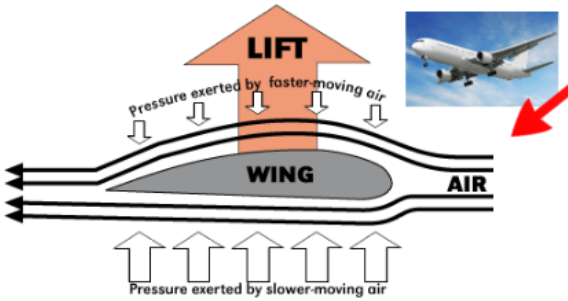


Geoff petty (2009)

Most inspirational picture I've ever seen!



Bernoulli Principle





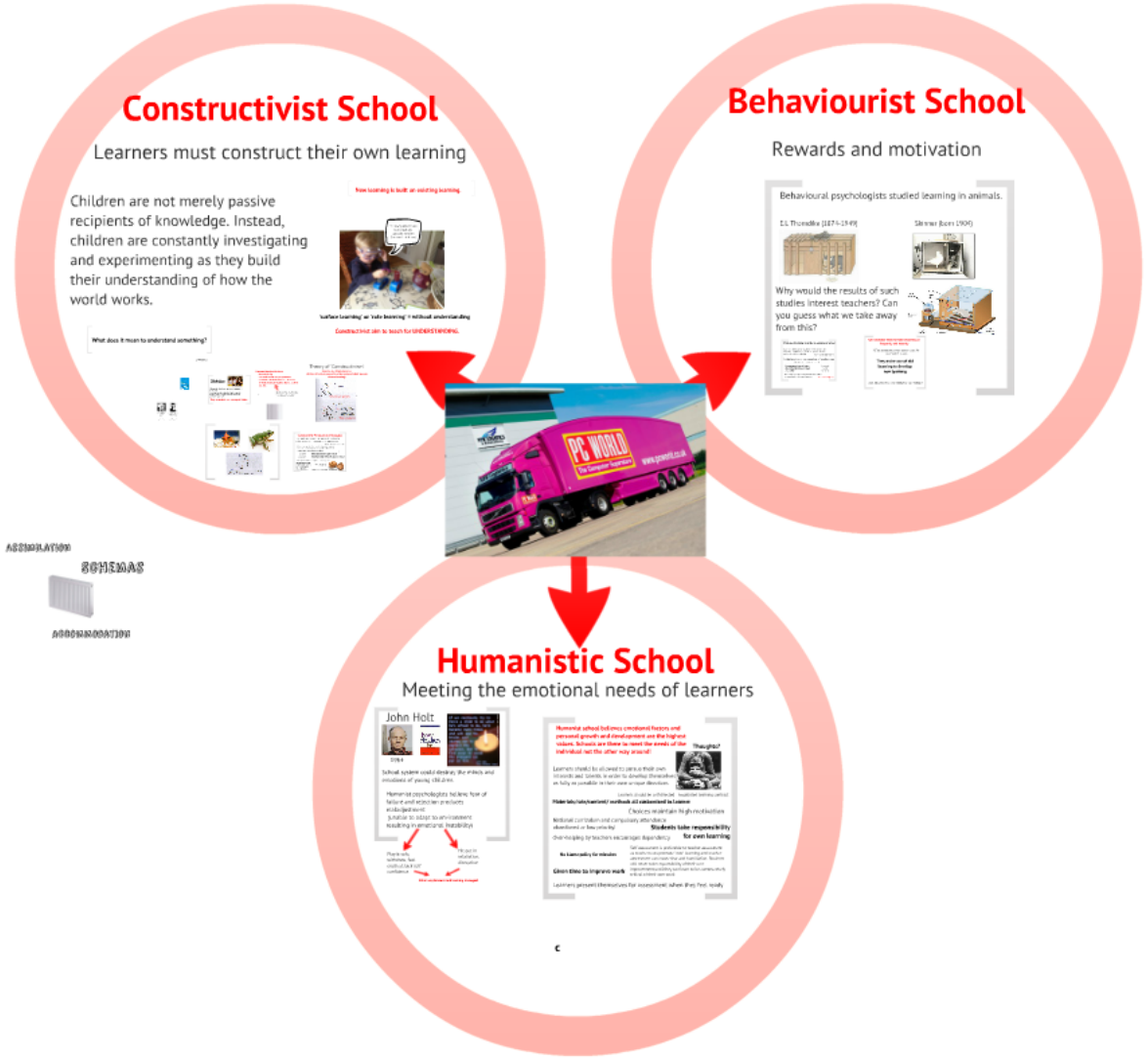
Educational Theory

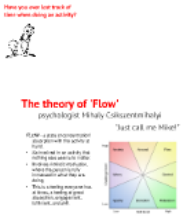
Memory
Cognitivist school
Behavioural school
Humanist school

Keep in mind your classroom

Shall we play a game?


Object permanence





Three schools of learning in psychology

Constructivist School

Learners must construct their own learning

Children are not merely passive recipients of knowledge. Instead, children are constantly investigating and experimenting as they build their understanding of how the world works.

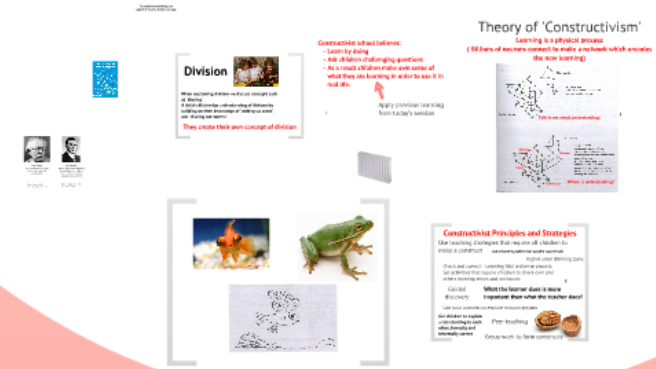
New learning is built on existing learning.



'surface learning' or 'rote learning' = without understanding

Constructivist aim to teach for UNDERSTANDING.

What does it mean to understand something?







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Constructivist aim to teach for UNDERSTANDING.

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What does it mean to understand something?

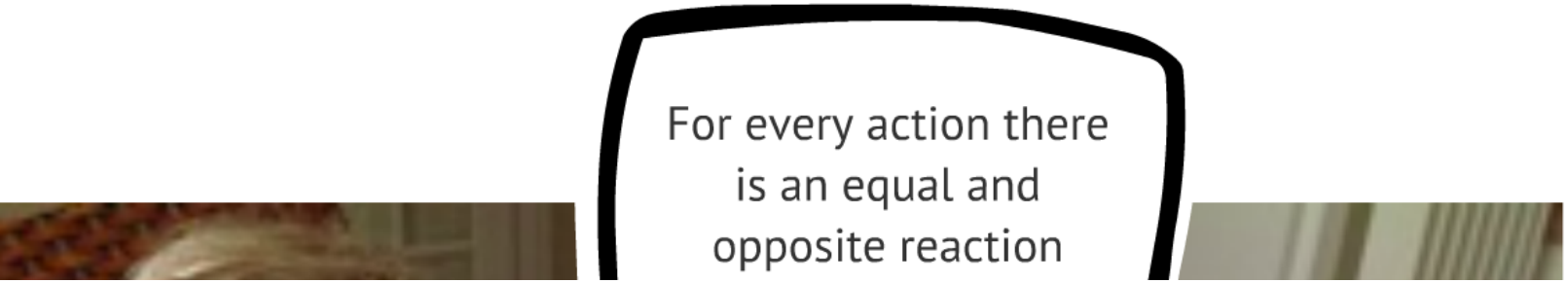
To understand something is to explain it in terms of other concepts



To understand something is to explain it in terms of other concepts

own learning

New learning is built on existing learning.



Division



When explaining division we discuss concepts such as 'sharing'.
A child will develop understanding of division by building on their knowledge of 'cutting up cakes' and 'sharing out sweets'

They create their own concept of division

Constructivist school believes:

- **Learn by doing**
- **Ask children challenging questions**
- **As a result children make own sense of what they are learning in order to use it in real life.**



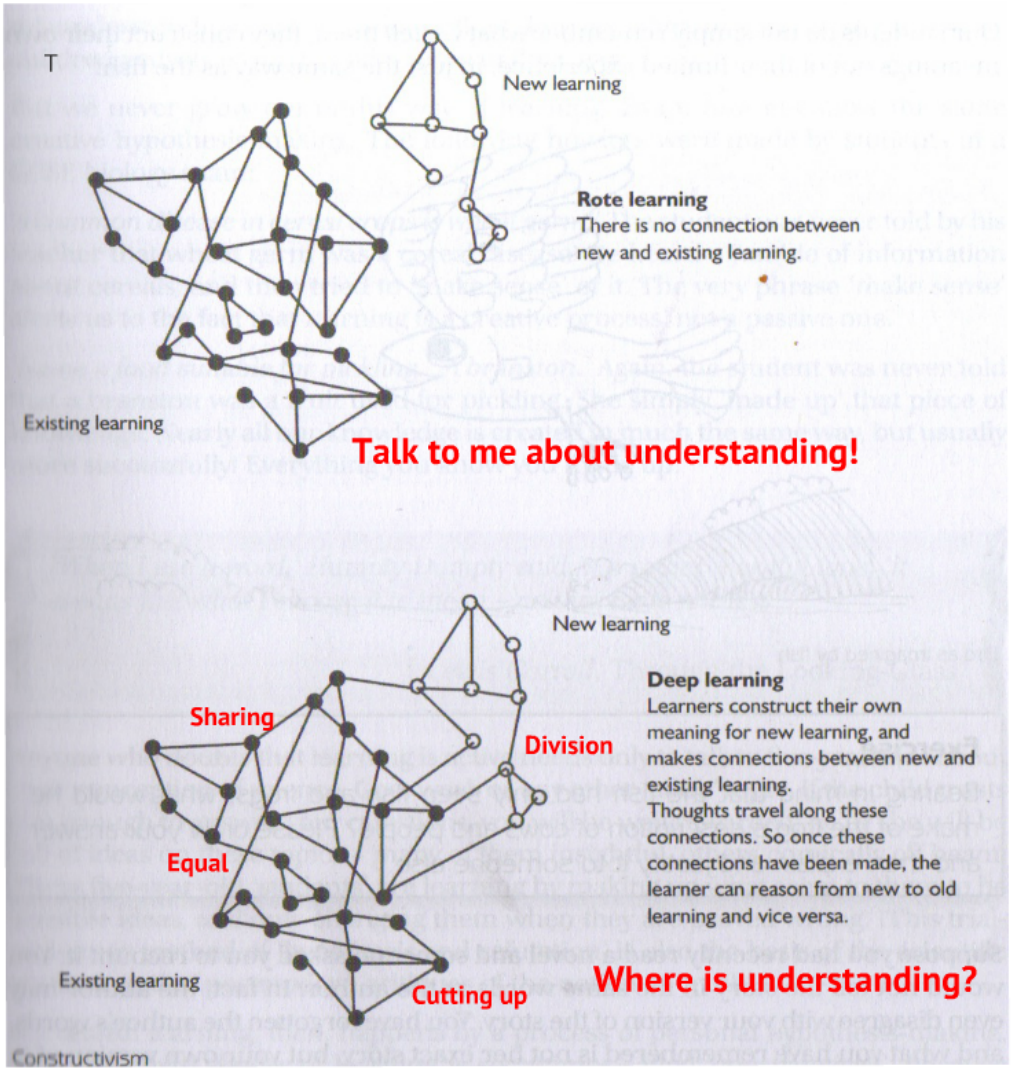
Apply previous learning from today's session

c

Theory of 'Constructivism'

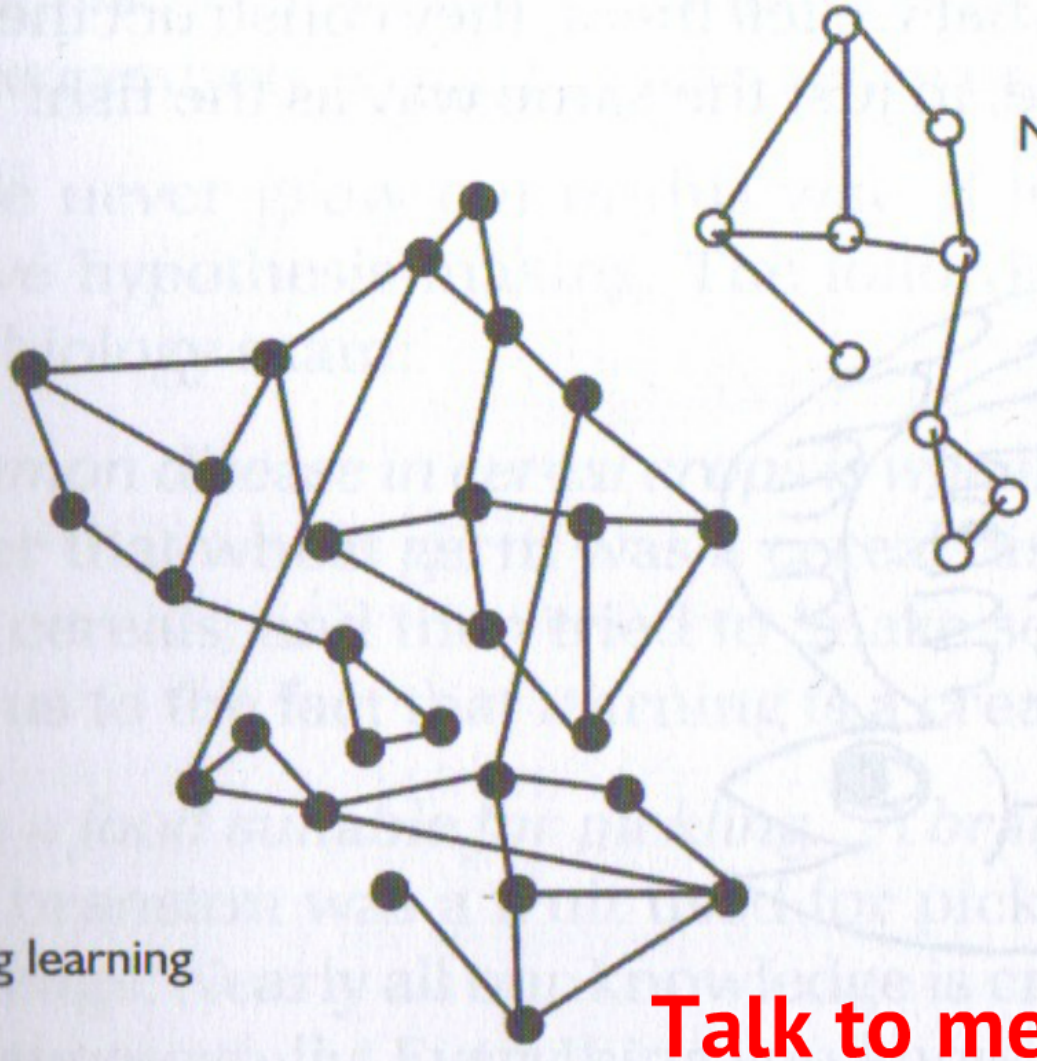
Learning is a physical process

(Billions of neurons connect to make a network which encodes the new learning)



the new learning)

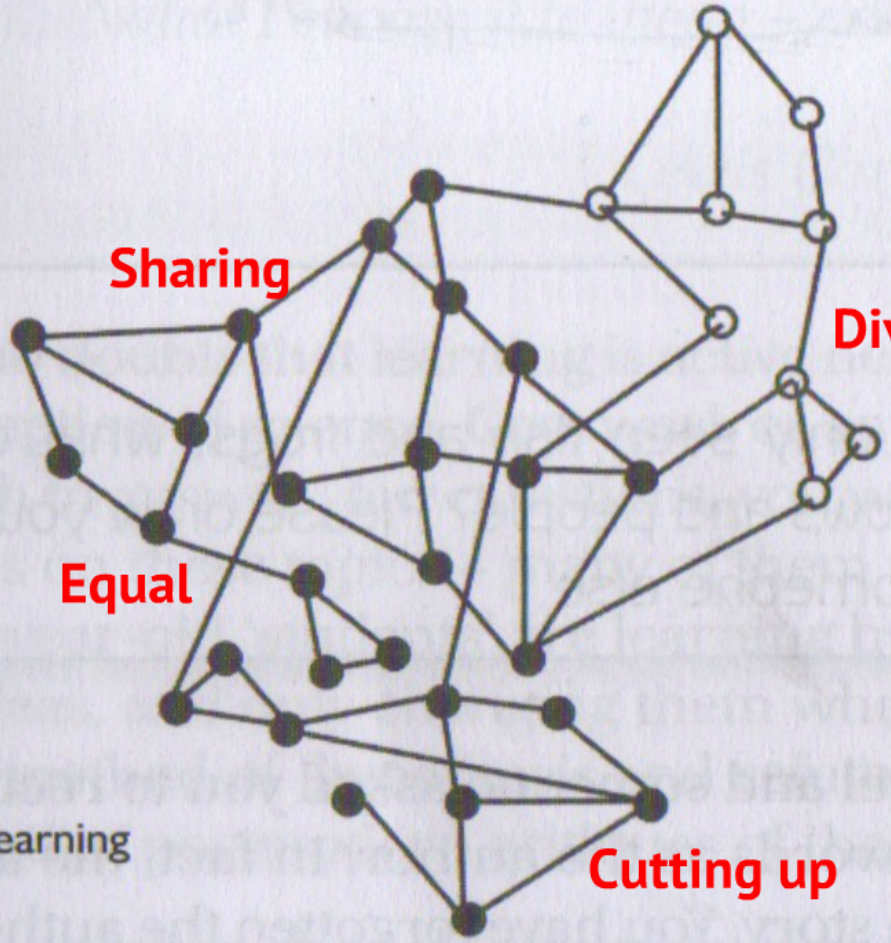
T



Rote learning
There is no connection between new and existing learning.

Talk to me about understanding!

Talk to me about understanding!



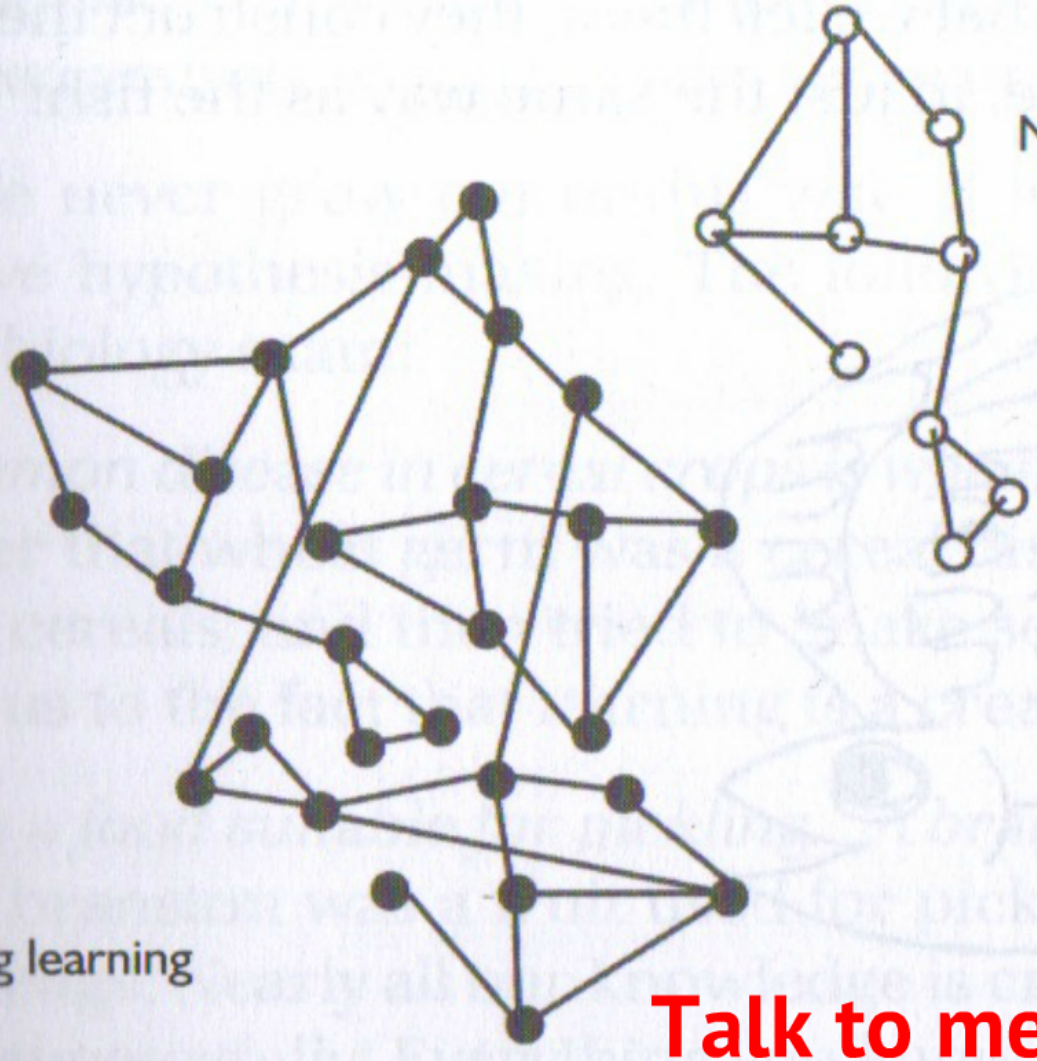
Deep learning
Learners construct their own meaning for new learning, and makes connections between new and existing learning.
Thoughts travel along these connections. So once these connections have been made, the learner can reason from new to old learning and vice versa.

Where is understanding?

onstructivism

the new learning)

T



Rote learning
There is no connection between new and existing learning.

Talk to me about understanding!



"Constructivists view learning as the result of _mental_ construction. That is, learning takes place when new _information_ is built into and added onto an individual's current structure of knowledge, understanding and skills“



Pritchard (2009) Ways of Learning. London: Routledge



Jean Piaget
Swiss psychologist known for his work on child development.

Born: 9 August 1896
Died: 16 September 1980



Lev Vygotsky
Soviet psychologist known for his emphasis on children's cultural and social context influences development.

Born: 17 November 1896
Died: 11 June 1934

Before Piaget...



Up until this point in history, children were largely treated simply as smaller versions of adults. Piaget was one of the first to identify that the way that children think is different from the way adults think.

ASSIMILATION

SCHEMAS

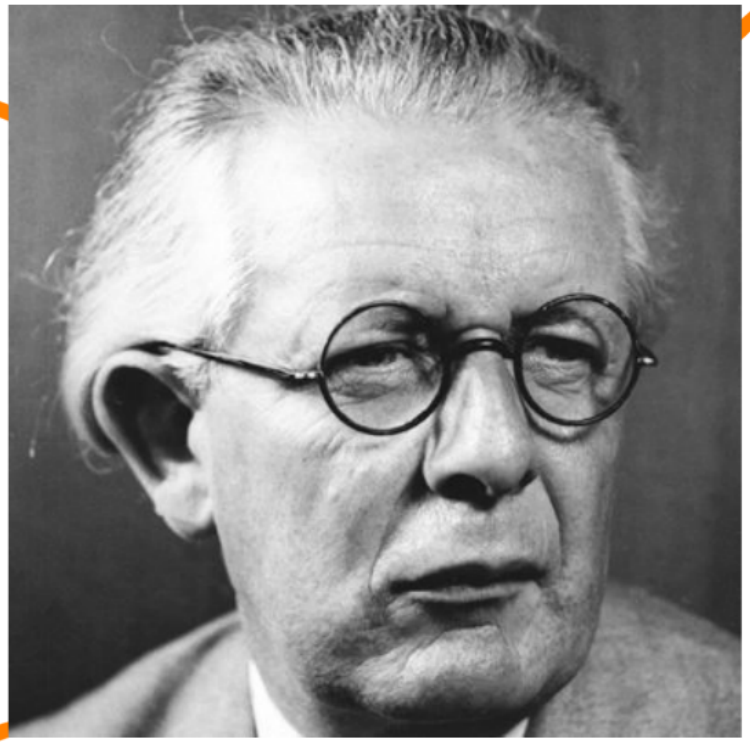


ACCOMMODATION



People, as 'lone scientists' actively 'make meaning'.

Piaget was a Swiss psychologist



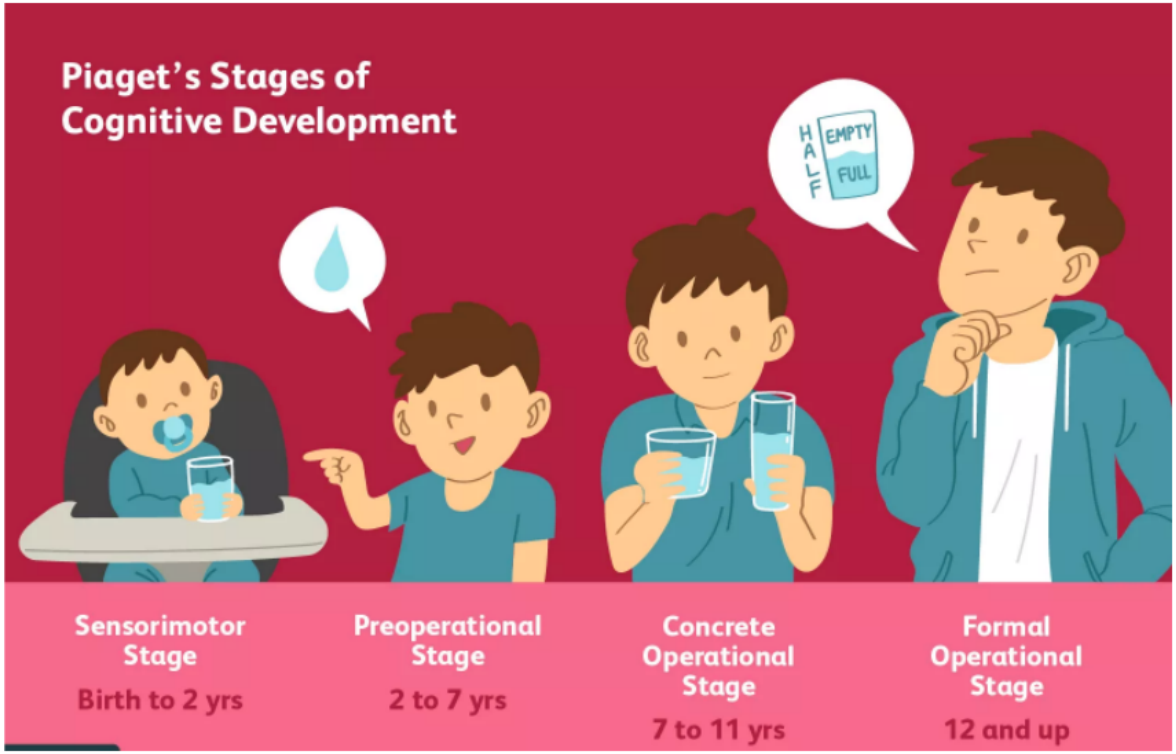
1896-1980

Piaget observed his children's cognitive development and thinking and concluded that the human infant actively seeks to make sense of the world.

Children pass through stages in which different types of learning occur – implying that children are only able to learn certain information and skills once they have reached a certain stage in their development. He linked this to the age of a child.

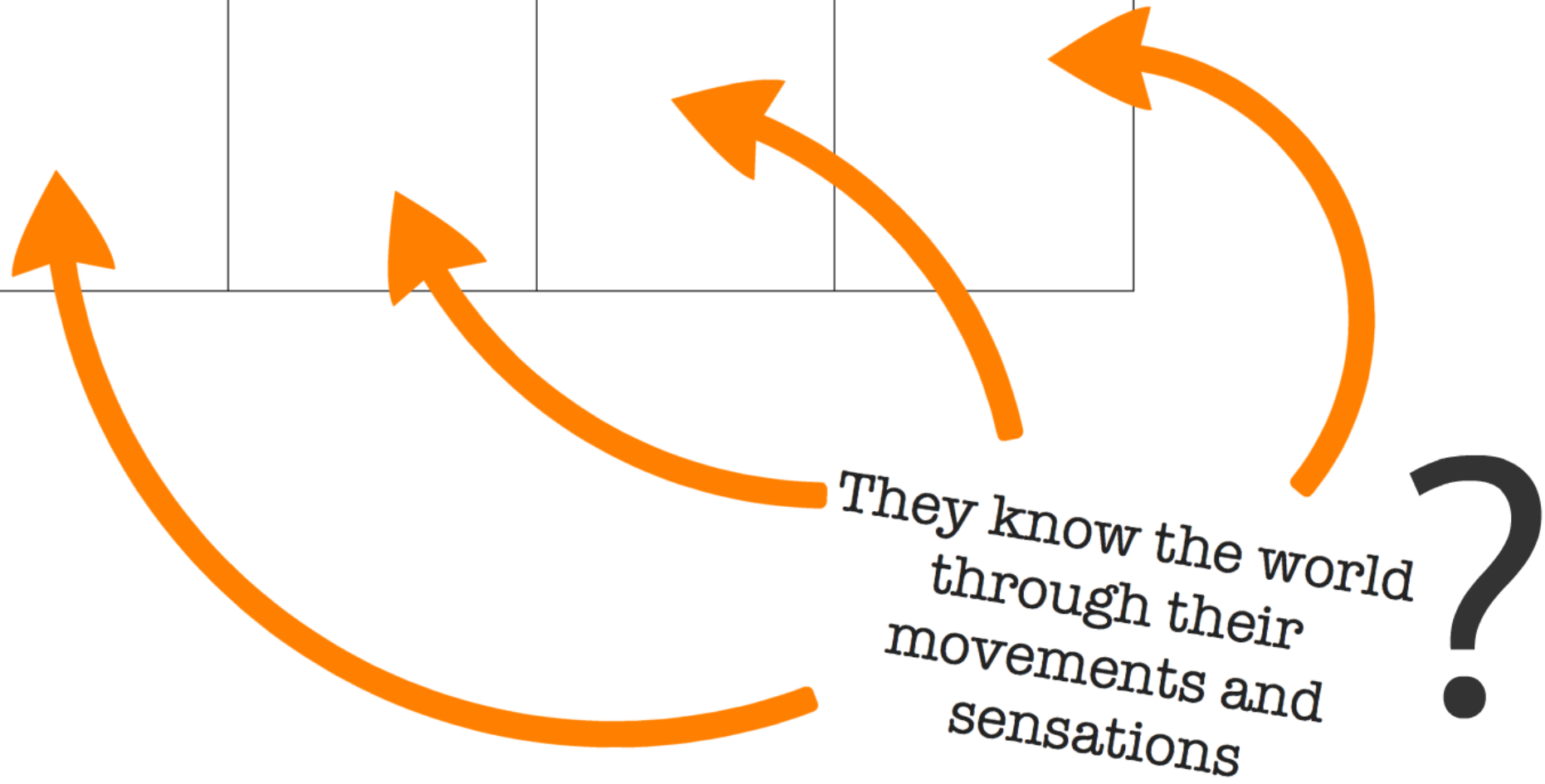
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teraction with the

The Sensorimotor Stage ***Ages: Birth to 2 Years*** Major Characteristics and Developmental Changes:	**The Preoperational Stage** ***Ages: 2 to 7 Years*** Major Characteristics and Developmental Changes:	**The Concrete Operational Stage** ***Ages: 7 to 11 Years*** Major Characteristics and Developmental Changes	**The Formal Operational Stage** ***Ages: 12 and Up*** Major Characteristics and Developmental Changes:



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• The infant knows the world through their movements and sensations • Children learn about the world through basic actions such as sucking, grasping, looking, and listening • Infants learn that things continue to exist even though they cannot be seen (object permanence) • They are separate beings from the people and objects around them • They realise that their actions can cause things to happen in the world around them	• Children begin to think symbolically and learn to use words and pictures to represent objects. • Children at this stage tend to be egocentric and struggle to see things from the perspective of others • While they are getting better with language and thinking, they still tend to think about things in very concrete terms	• During this stage, children begin to thinking logically about concrete events • They begin to understand the concept of conservation • Their thinking becomes more logical and organised, but still very concrete • Children begin using inductive logic, or reasoning from specific information to form a general principle	• At this stage, they begin to think abstractly and reason about hypothetical problems • Abstract thought emerges • They begin to think more about moral, philosophical, ethical, social, and political issues that require theoretical and abstract reasoning • Begin to use deductive logic, or reasoning from a general principle to specific information

Cons



Object permanence

Piaget believed that developing object permanence or object constancy, the understanding that objects continue to exist even when they cannot be seen, was an important element at this point of development.

By learning that objects are separate and distinct entities and that they have an existence of their own outside of individual perception, children are then able to begin to attach names and words to objects.

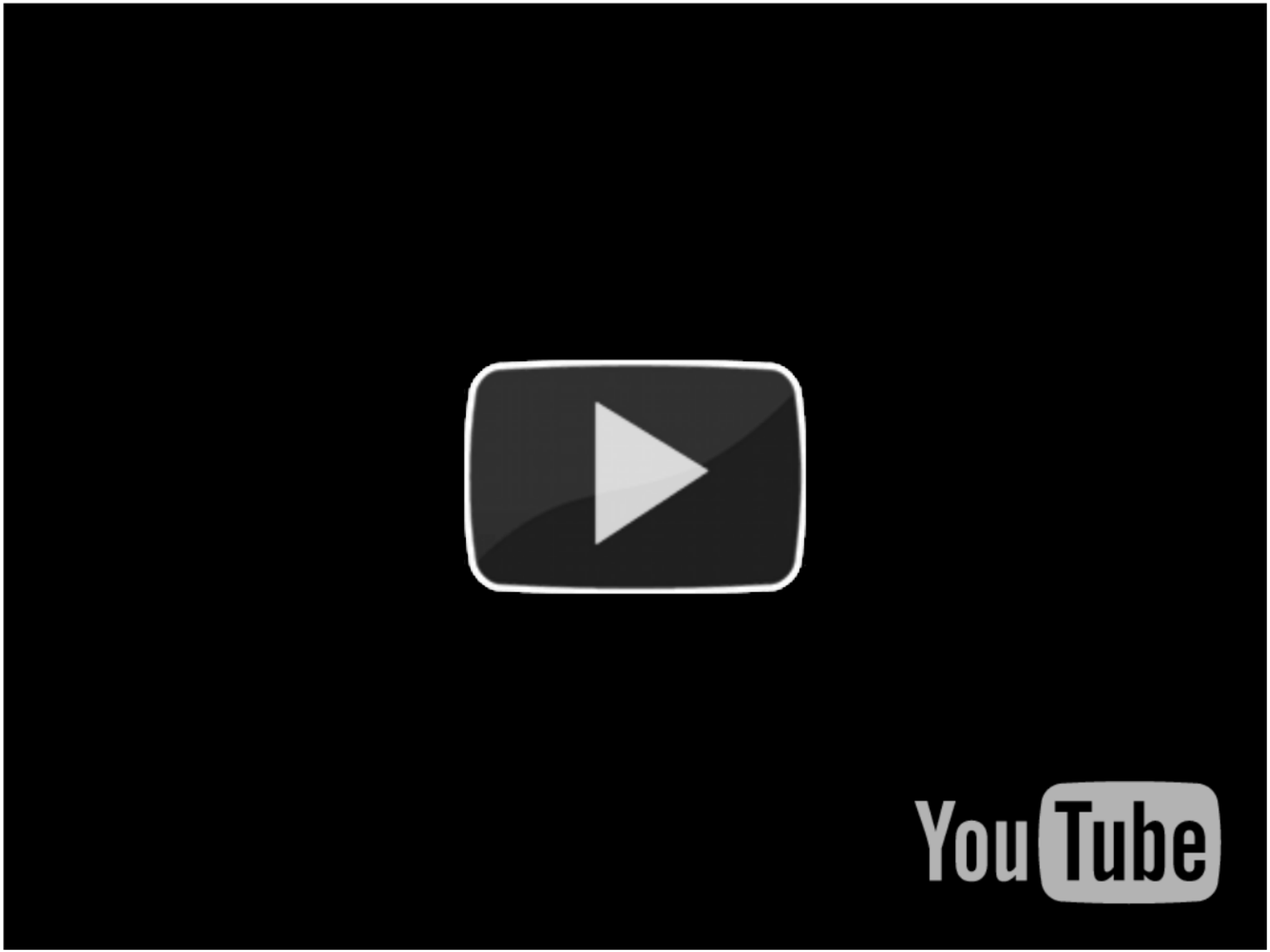
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Preoperational Stage of Cognitive Development

(2 to 7 years)



Children in this stage begin to think symbolically


YouTube

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Conservation Demo!

Concrete Thinking



Concrete thinking is literal thinking that is focused on the physical world.

It is the opposite of abstract thinking.

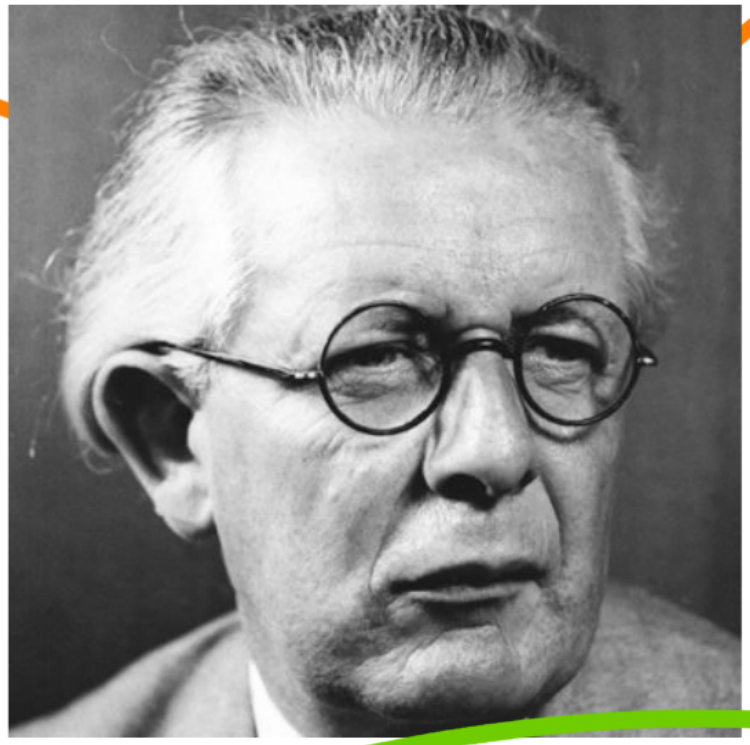
People engaged in concrete thinking are focused on facts in the here and now, physical objects, and literal definitions.

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Jean Piaget was a Swiss psychologist



1896-1980

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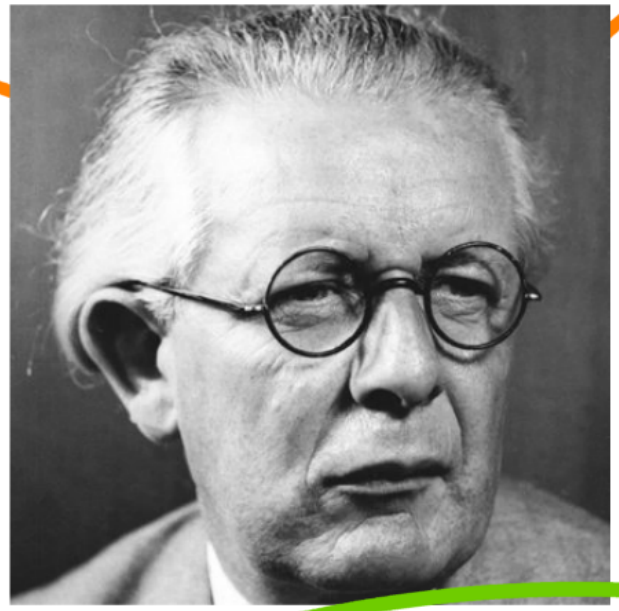
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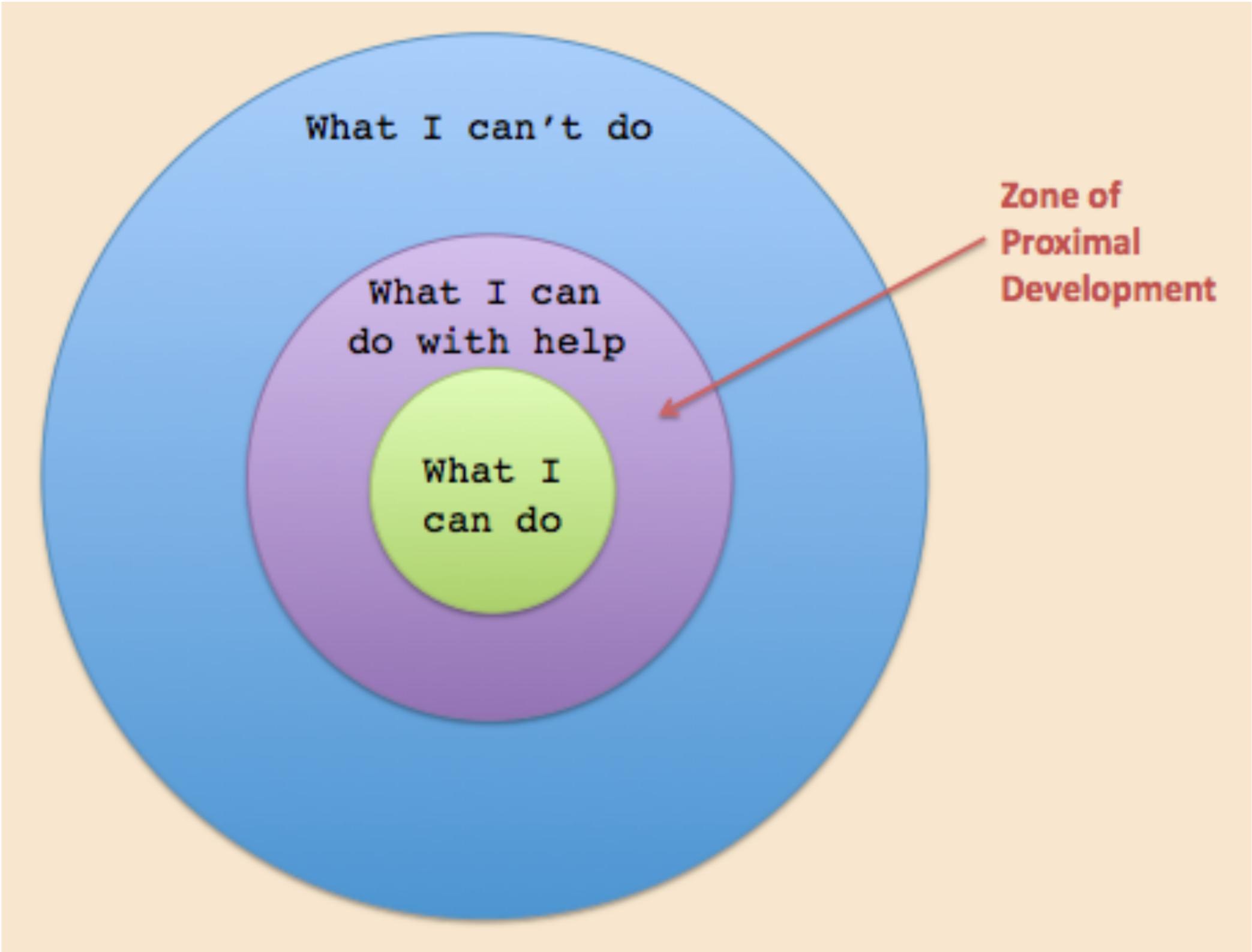
Children construct knowledge

Learning can lead to development (Precedes)

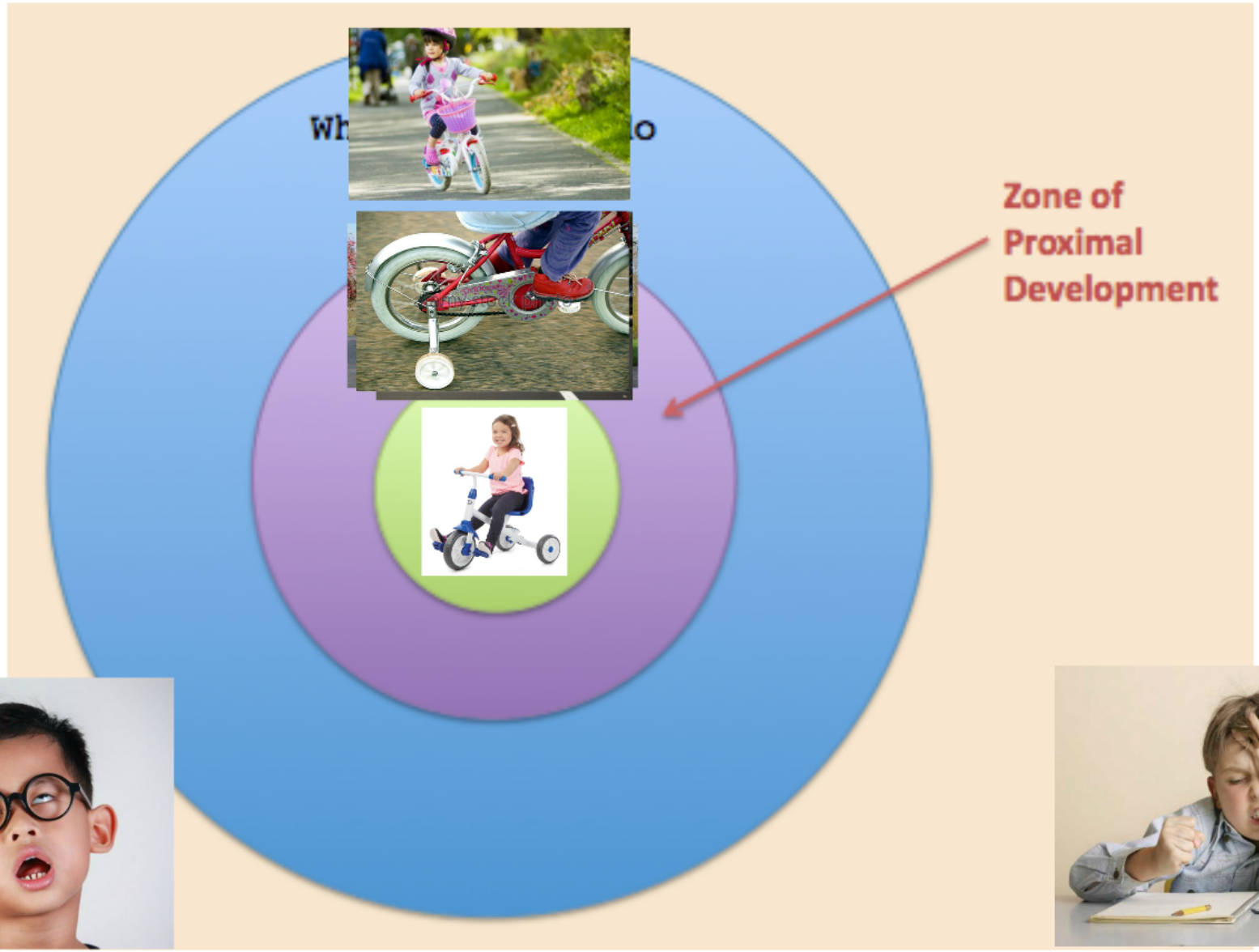
Development can't be separated from social context

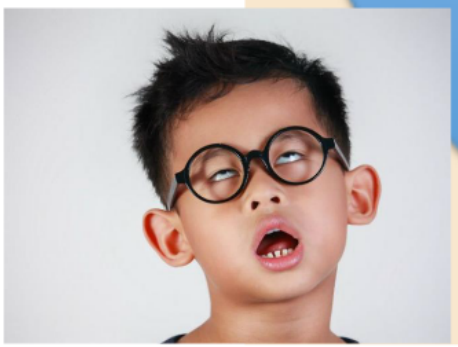
Language plays a central role in mental development

Probably most famous for the ZPD!


What I can't do
What I can do with help
What I can do
Zone of Proximal Development

In order to learn we must be presented with tasks





Too easy = Boredom



Too hard = Frustration

Tasks that are just out of reach of the learners current ability

UNDERSTANDING HOW WE LEARN

A VISUAL GUIDE

YANA WEINSTEIN AND MEGAN SUMERACKI
WITH OLIVER CAVIGLIOLI



A David Fulton Book

Constructivist Principles and Strategies

Use teaching strategies that require all children to make a construct

Active learning rather than passive teacher talk

Higher order thinking tasks

Check and correct - Learning trial and error process.
Set activities that require children to check own and others learning errors and omissions

c

Guided discovery

What the learner does is more important than what the teacher does!

Use poor answers to explore misconceptions

Get children to explain understanding to each other..formally and informally correct

Peer teaching



Group work to form constructs

Behaviourist School

Rewards and motivation

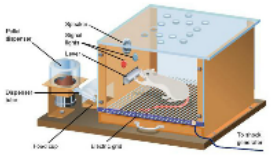
Behavioural psychologists studied learning in animals.

E.L Thorndike (1874-1949)



Skinner (born 1904)





Why would the results of such studies interest teachers? Can you guess what we take away from this?



Principles of learning according to behaviourist school

Divide long tasks into a number of smaller ones

Reinforcement should follow the desired behaviour as soon as possible.

Feedback



We remember what we have experienced frequently and recently

Effective teachers stress key points at the start/ end of lessons

They make use of old learning to develop new learning

Does education violate the behaviourists' findings?



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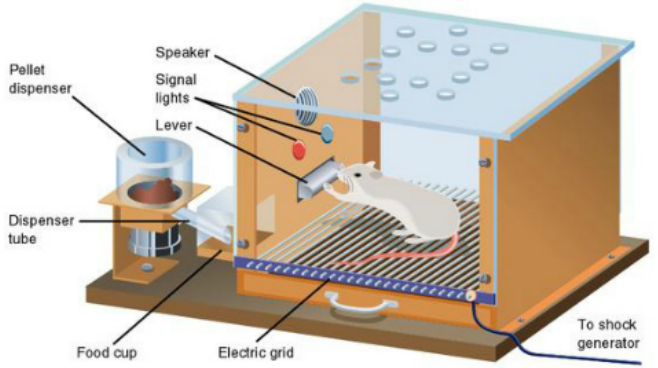
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Principles of learning according to behaviourist school

Learners require some reward or 'reinforcement' for learning (Learners motivated by expected reward - praise or satisfied curiosity)

Set achievable tasks for learners

Divide long tasks into a number of smaller ones

Make sure learners are successful regularly

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feedback while working!

Learning is step by step not all at once and is strengthened by repeated success

No success = soon give up!

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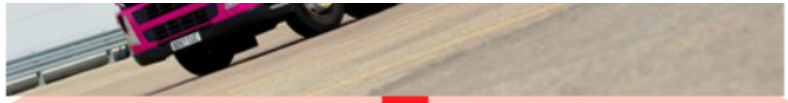
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Humanistic School

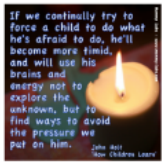
Meeting the emotional needs of learners

John Holt



1964





School system could destroy the minds and emotions of young children.

Humanist psychologists believe fear of failure and rejection produces maladjustment
(unable to adapt to environment resulting in emotional instability)

Play it safe, withdraw, feel crushed, lack self confidence.

Hit out in retaliation, disruptive

Either way learners and learning damaged!

Humanist school believes emotional factors and personal growth and development are the highest values. Schools are there to meet the needs of the individual not the other way around!

Thoughts?



Learners should be allowed to pursue their own interests and talents in order to develop themselves as fully as possible in their own unique direction.

Learners should be self directed - negotiated learning contract

Materials/rate/content/ methods all customised to learner

Choices maintain high motivation

National curriculum and compulsory attendance abandoned or low priority!

Students take responsibility for own learning

Over-helping by teachers encourages dependency

No blame policy for mistakes

Self assessment is preferable to teacher assessment as teacher tests promote 'rote' learning and teacher assessment can create fear and humiliation. Students will never take responsibility of their own improvement until they can learn to be constructively critical of their own work.

Given time to improve work

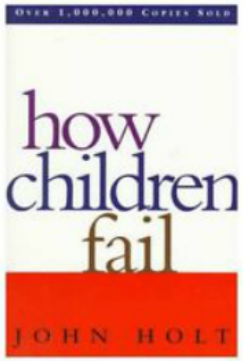
Learners present themselves for assessment when they feel ready

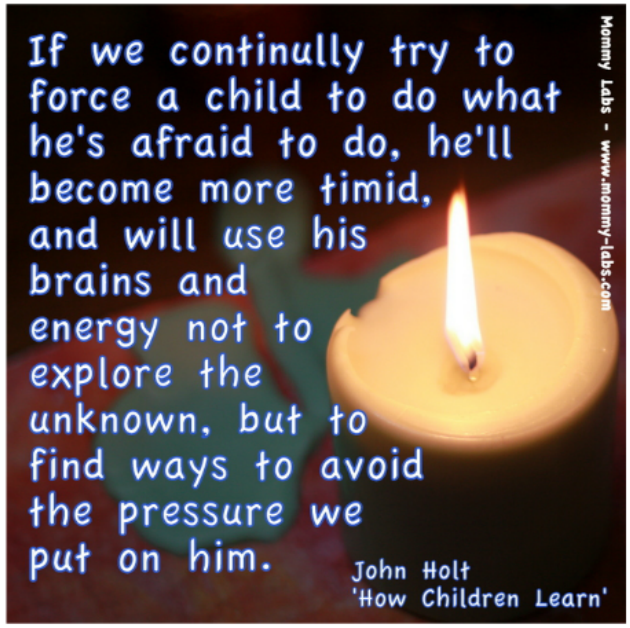
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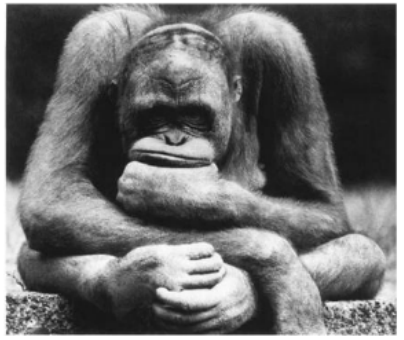
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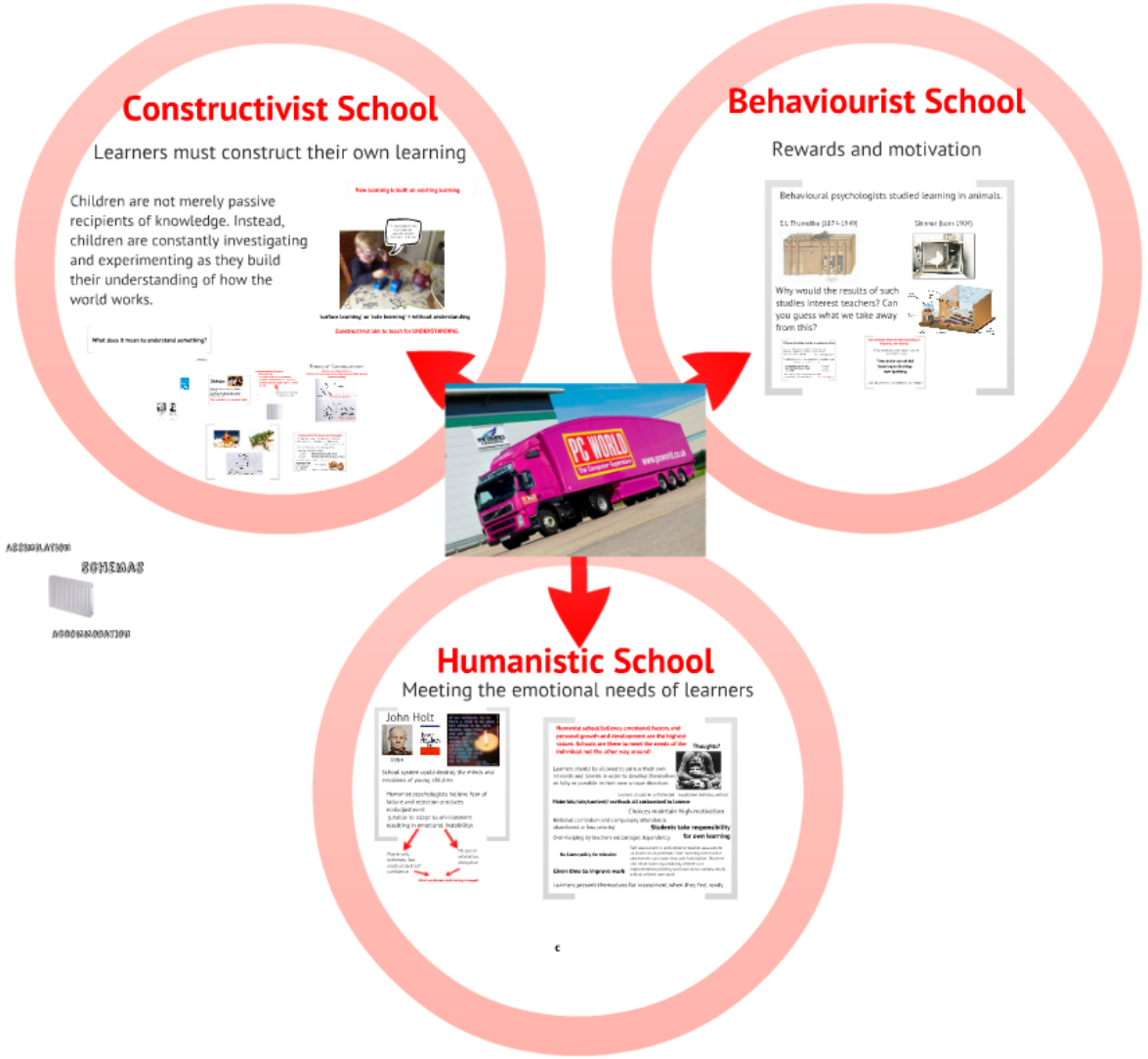
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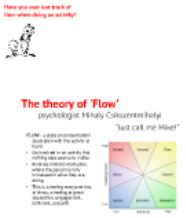
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Three schools of learning in psychology

Can you remember the list of words?

Thick wall it tea of myrrh seize knots trained

Nearly phonetically identical to...

The quality of mercy is not strained

Makes sense?

On the whole we don't remember words, we remember meanings and these meanings we must make ourselves!

Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

Yr Athrofa
Institute of Education
Addysg i Gymru Education for Wales

ECAD4007 Who am I teaching?

Who's who 1: Introduction to Key theories of learning



Tom Cox