UNIVERSITY OF
LINCOLN

Session 4: Learning Theories and Motivation

This Session

Learning Intentions:

1. To begin to understand learning theories
2. To understand the term motivation…

Portfolio Component Focus: Component 1 Essay

Component 1

1000 words for 50% of the mark: Effective Teaching

- In this component you will be asked to reflect on the following question drawing on relevant literature, critically discuss:

What is effective teaching in your subject?

Effective Teaching (Pedagogy)

Below is a list of claims from Husbands and Pearce (2012):

1. Consideration of pupil voice
2. Depends on teachers' behaviour, knowledge and understanding, and beliefs
3. Clear thinking of longer-term learning outcomes and short-term goals
4. Build on pupils' prior learning and experience
5. Involve scaffolding pupil learning
6. Involve a range of techniques
7. Develop higher order thinking and metacognition – good use of dialogue and questioning in order to do so
8. Embed assessment for learning
9. Are inclusive and take the diverse needs of a range of learners, as well as matters of equity, into account.

Starter

How would you explain the following concept to someone….

1. What is a magnet?

2. Why do magnets attract or repel?

The Richard Feynman Thinking…

- Watch the clip about magnets…
- Compare your approach to Richard Feynman's …
- What is the issue?

Learning…

1. How *engaged* were you in the video?

2. How *motivated* were you with the starter?

3. What are the issues with learning here?

Definitions

Motivation:

- “an inner drive to action” (Bandura, 1986, p.243)

Interest:

- “a fascination with something” (ibid)
- Note: this can be personal or situational

Personal or situational interest

	Personal or Situational Interest?
Interest that is primarily concerned with the relative ranking of an individual's preferences (Abrahams and Sharpe, 2010).	
However, whilst it can be an important factor in effective learning, it is not something that is, in the short-term, susceptible to teacher influence (Hidi and Harackiewicz, 2000).	
Consistent need to be re-stimulated.	
Susceptible to teacher influence in the short term (Hidi and Anderson, 1992).	
Interest that is stimulated in an individual as a consequence of being in a particular environment or situation (Bergin, 1999).	
Bergin (1999) suggests relevance, competence, identification, cultural value, social support, background knowledge and emotions, all of which are, generally speaking, beyond a teacher's immediate domain of influence. (Abrahams and Sharpe, 2010, p. 112).	
While it therefore provides an opportunity for teachers to influence the effectiveness of student learning in specific lessons, its effect is less likely to endure over time (Hidi and Harackiewicz, 2000).	
Increasing knowledge in a subject leads to increase interest in it. This interest leads students to pay closer attention, learn more and engage for longer with any new material they are presented with.	

Personal and situational interest

Personal Interest	Situational Interest
Interest that is primarily concerned with the relative ranking of an individual's preferences (Abrahams and Sharpe, 2010)	Interest that is stimulated in an individual as a consequence of being in a particular environment or situation (Bergin, 1999)
However, whilst it can be an important factor in effective learning, it is not something that is, in the short-term, susceptible to teacher influence (Hidi and Harackiewicz, 2000).	Susceptible to teacher influence in the short term (Hidi and Anderson, 1992).
Bergin (1999) suggests relevance, competence, identification, cultural value, social support, background knowledge and emotions, all of which are, generally speaking, beyond a teacher's immediate domain of influence. (Abrahams and Sharpe, 2010, p. 112)	While it therefore provides an opportunity for teachers to influence the effectiveness of student learning in specific lessons, its effect is less likely to endure over time (Hidi and Harackiewicz, 2000)
Increasing knowledge in a subject leads to increase interest in it. This interest leads students to pay closer attention, learn more and engage for longer with any new material they are presented with.	Consistent need to be re-stimulated.

Intrinsic and Extrinsic Motivation

Intrinsic Motivation

"Intrinsic motivation occurs when we act without any obvious external rewards. We simply enjoy an activity or see it as an opportunity to explore, learn, and actualize our potentials."

Coon and Mitterer (2010)

Extrinsic Motivation

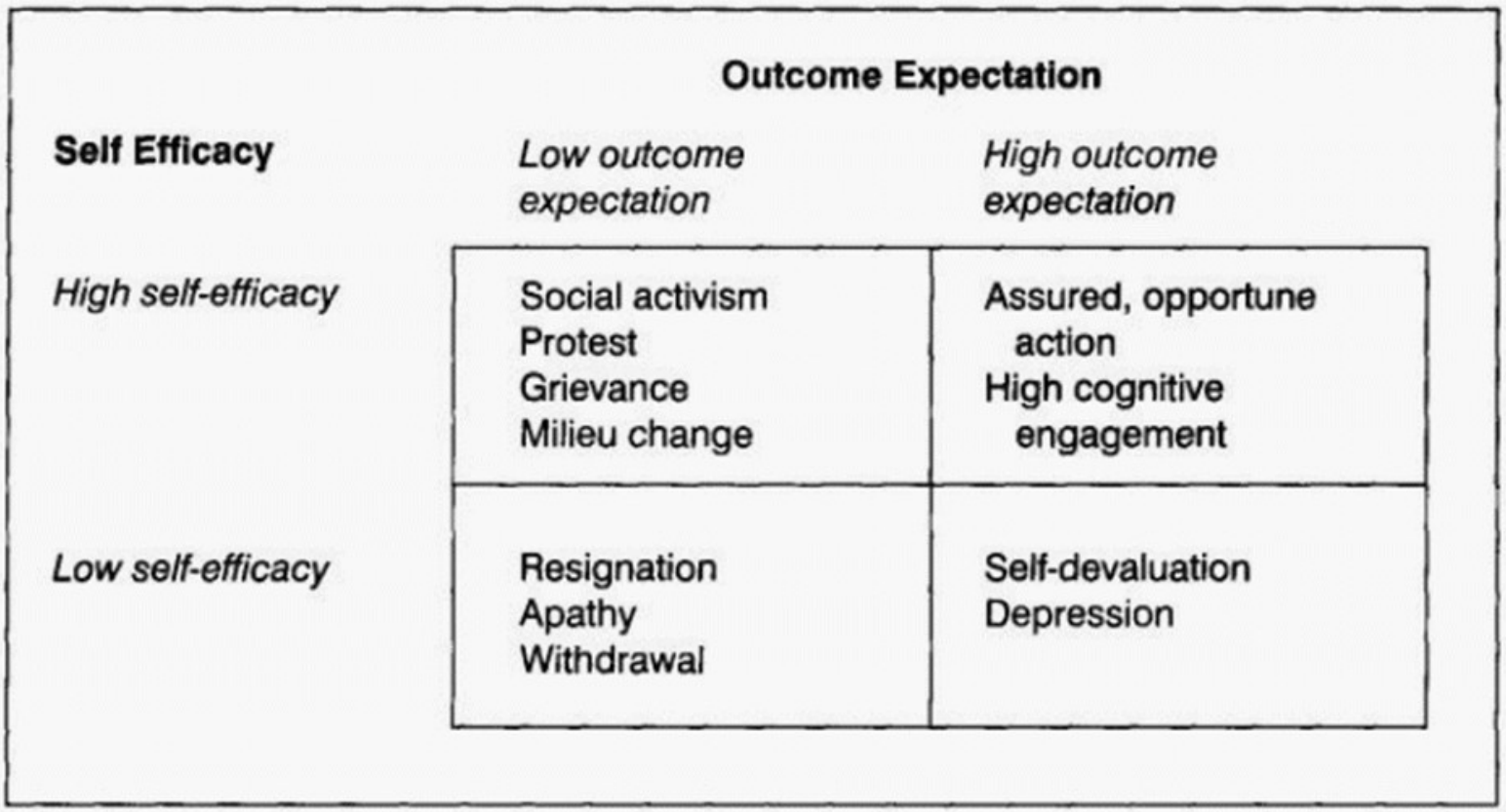
When we are motivated to participate or behave in an activity because we want to be rewarded or avoid punishment.

Watch this Clip!

Self-Efficacy

- This is the belief that you are capable to carry out a task or reach a goal.
- Self-efficacy (Bandura, 1986) underpins motivation
- Confidence or belief in your own academic ability
- High degree of confidence results in good motivation to learn and impacts on the time that children will spend returning to tasks in order to develop work
- Low degree of confidence results in children feeling unmotivated and disengagement with academic work

Self-efficacy and Expectancy



Self Efficacy	Outcome Expectation: *Low outcome expectation*	Outcome Expectation: *High outcome expectation*
High self-efficacy	Social activism Protest Grievance Milieu change	Assured, opportune action High cognitive engagement
Low self-efficacy	Resignation Apathy Withdrawal	Self-devaluation Depression

Figure 3.3. Behavioral and affective reactions as a function of different levels of self-efficacy and outcome expectations

From "Self-Efficacy Mechanism in Human Agency" by A. Bandura, 1982, *American Psychologist*, 37, p. 140. Copyright © 1982 by the American Psychological Association. Adapted by permission.

Hattie: Effect Sizes (2018)

- What has the greatest influence on student learning….?

- Motivation has an effect size of 0.42
- An effect size of 0.5 is equivalent to a one grade leap at GCSE
- An effect size of 1.0 is equivalent to a two grade leap at GCSE

- Hattie's effect size research is based on nearly 1200 meta-analyses – up from the 800 when Visible Learning came out in 2009.

- Research involved a control group – effect size is the difference between two groups (Watch this)

Theories of Learning

- There are two common (amongst many!) approaches to learning:

1. Behaviourism

2. Cognitivism also referred to as Constructivism or Connectivism

Over to you…

- In groups of 3, choose one of the following learning theories:

- Produce some work by completing the following questions on the theory:

1. What is important about the theory?
2. Why is the theory important to teaching?
3. How does the theory impact on teaching?
4. How can the theory support effective teaching? Try linking to the Husbands and Pearce (2014) work…
5. Prepare to feedback (we will put work on blackboard to share)

Dewey	Pavlov
Skinner	Tolman
Vygotsky	Piaget
Bandura	Sweller
Miller	Maslow

Feedback

- What have we learnt about theories of learning that is important to effective teaching?

- We may want to reflect on the work by Husbands and Pearce (2014).

Plenary

1. What do you think the role of learning has on effective teaching?

2. What will you take from the theories that you have learnt about today?

3. What do you want to know more about?

Task for Next Session

Read and link to your portfolio work the following:

1. Husbands, C. and Pearce, J. (2012). *What makes great pedagogy? Nine claims from research.* Nottingham, NCTL. Article Link
2. Coe, R., Aloisi, C., Higgins, S., and Elliot Major, L. (2014) *What makes great teaching?* London: Sutton Trust Sutton Trust Document
3. Read through the independent study slides and make your own notes.
4. Think about the role assessment has in effective teaching – can you write 3 reasons why assessment is important?

Independent Study Slides

Please read and make your own notes on the following…

Overview of Behaviourism

- Rooted in the 19th century and led by the developing psychology discipline.
- A lot of research by psychologists was based on animals (think ethics!) with theories being transferred to humans!
- Based on the principle of **stimulus** and **response** – think a teacher led activity!
- Premise is that people need direction and that if stimulus is something an individual **wants** or **fears** then the individual will **respond** accordingly thus changing behaviour.

- **Critics** – autocratic and transmission led approach – fails to recognise autonomy…

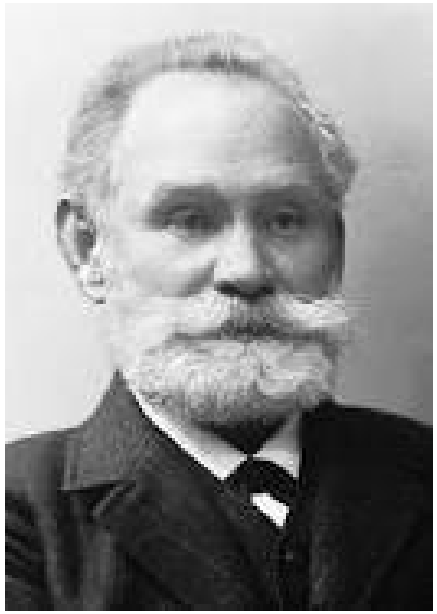
Behaviourist Theorist

John Watson (1878 to 1958)

- Psychologist
- Experiments on babies “Albert”:
  1. Pre-conditioning: Baby enjoys petting a rat showing no fear.
  2. Conditioning: Baby pets the rat and Watson makes a loud noise frightening baby
  3. Post condition: Baby sees rat again – he becomes frightened.
  4. The same occurred with objects
- People can be conditioned and that learning is a direct consequence of the conditioning
- Anyone, regardless of nature, can be trained to be anything!

Behaviourist Theorists

Ivan Pavlov (1849 – 1936)



- A physiologist – digestive system won Nobel Prize 1904
- Classical conditioning – dog was conditioned to associate food with the bell.

Burrhus Frederick (B.F.) Skinner (1904 – 1990)

- A psychologist
- Used rats and 'Skinner boxes'
- Operant conditioning – rats acted on the environment as opposed to the Pavlov's dogs who had a reflex action reacting to the environment.

Overview of Cognitivism / Constructivism

- Theory grew out of **dissatisfaction** with the behaviourist theory which was too focussed on outcome rather than developing **potential**…

- Branches from cognitivism including **Constructivism** and **Connectivism.**

- **Critics –** too focused on personal developmental encounters rather than learning outcomes and that not all people have capacity or desire to spend time processing information.

Constructivist Approach

- The constructivist approach to education maintains that knowledge is constructed rather than obtained.

- The idea that learning is a process of gathering all the pieces together until they begin to form a complete picture.

Constructivist Theorists

Advocates of the constructivist approach to education include:

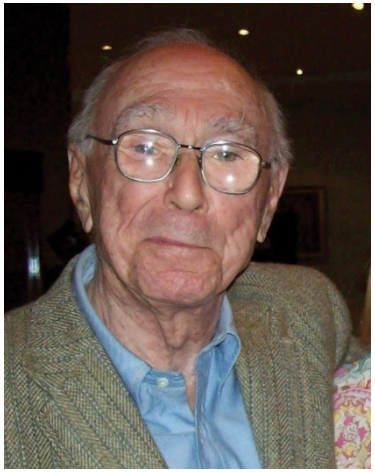
1. **Lev Vygotsky (1896 – 1934)**
2. **Jean Piaget (1896 – 1980)**
3. **Jerome Bruner (1915 – 2016)**
4. **Albert Bandura (1925 - 2021)**

Social Development Theory – Lev Vygotsky (1896 – 1934)

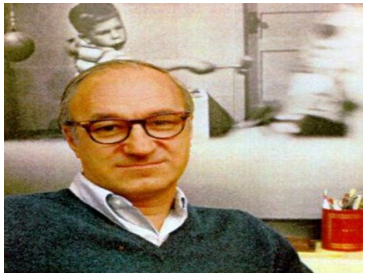
- Identified the social aspect of children's learning
- Learning is not transference of knowledge
- Children learn from a more knowledgeable other in a collaborative fashion
- Developed the concept of scaffolding
- Zone of Proximal Development

Social interactionist theory - Jerome Bruner (1915-2016)

- Theory builds on the work of Lev Vygotsky
- Interaction with other people scaffolds the learning of skills and supports development
- Desire to communicate drives us to learn language skills and this in turn impacts upon learning.



Cognitivism Theory – Albert Bandura (1925 - 2021)



- Social Learning Theory
- Studied aggression
- Learning takes place merely by watching others who act as models

Constructivism

- Argue we learn through building schemata to interpret the world.

- As the **schemata** become more sophisticated, so does our understanding of the world.

- The view that **experience** and **knowledge** are filtered through the learners' **perceptions** and **personal theories**.

Constructivism

- The process is **dynamic**.

- As new knowledge is **assimilated**, it is fitted into the existing **schemata** until there comes a point when new experience and knowledge are in conflict with the existing schemata so the schemata change – or the new knowledge is rejected.

Learning as a Constructive Process

- Constructivist theorists concern themselves with the internal aspects of learning

- They suggest that knowledge is created as a result of an individual's **observations** and **experiences**.

- Individuals attempt to combine much of what they learn into integrated bodies of knowledge

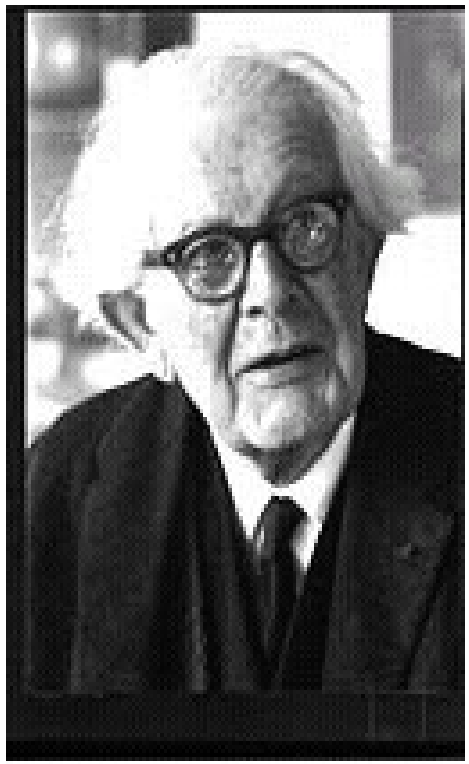
(Ormrod, 2006)

Learning as a Constructive Process

- As a teacher, knowing a child's level of ability is essential
- Too easy work could cause false confidence and behaviour problems…
- Too difficult work could increase frustration and decrease the child's confidence and behaviour problems…
- All about getting the balance right…

Classical versus Operant Conditioning

https://www.youtube.com/watch?v=H6LEcM0E0io



Cognitivism Theory: Jean Piaget 1896 -1980

Piaget

- Piaget proposed a developmental theory of how children form the concepts involved in thinking (Piaget, 1952; Piaget and Inhelder, 1969)
- Many researchers agree that about his work on the child as **active** and **information seeking**

Theory of Cognitive Development

- Piaget suggested that cognition was a developmental phenomenon

- Specifically, Piaget insisted that over the course of a person's life one develops more complex cognitive structures of knowledge and reasoning than that which was present at an earlier stage

Theory of Cognitive Development

- Piaget suggested that children learn to think about problems in a variety of different ways and this depends on their age and their stage of development

- He also suggested that all children go through **the same stages and sequences** of development while they are learning and discovering new information

Theory of Cognitive Development

Piaget suggested that in order to develop cognitively, children require the following three mental structures:

1. **Schemas** – organised patterns of behaviour or thoughts that guide a child's actions

2. **Concepts** - particular classes of objects (including inanimate objects) or events, grouped together on the basis of the things they have in common

3. **Operations** – the mental activity that combines both schemas and operations

Assimilation and Accommodation

Assimilation

- Using current schemas to interpret external world

➢Explaining new things drawing on knowledge

Accommodation

- Adjusting old schemas, creating new ones to better fit environment

➢Explaining new things by changing current held knowledge

Stages of Development

- Piaget felt that while we construct our understanding of the world at every stage of our lives the kinds of understandings we develop depend on our stage of development.

- Piaget identified patterns of development.

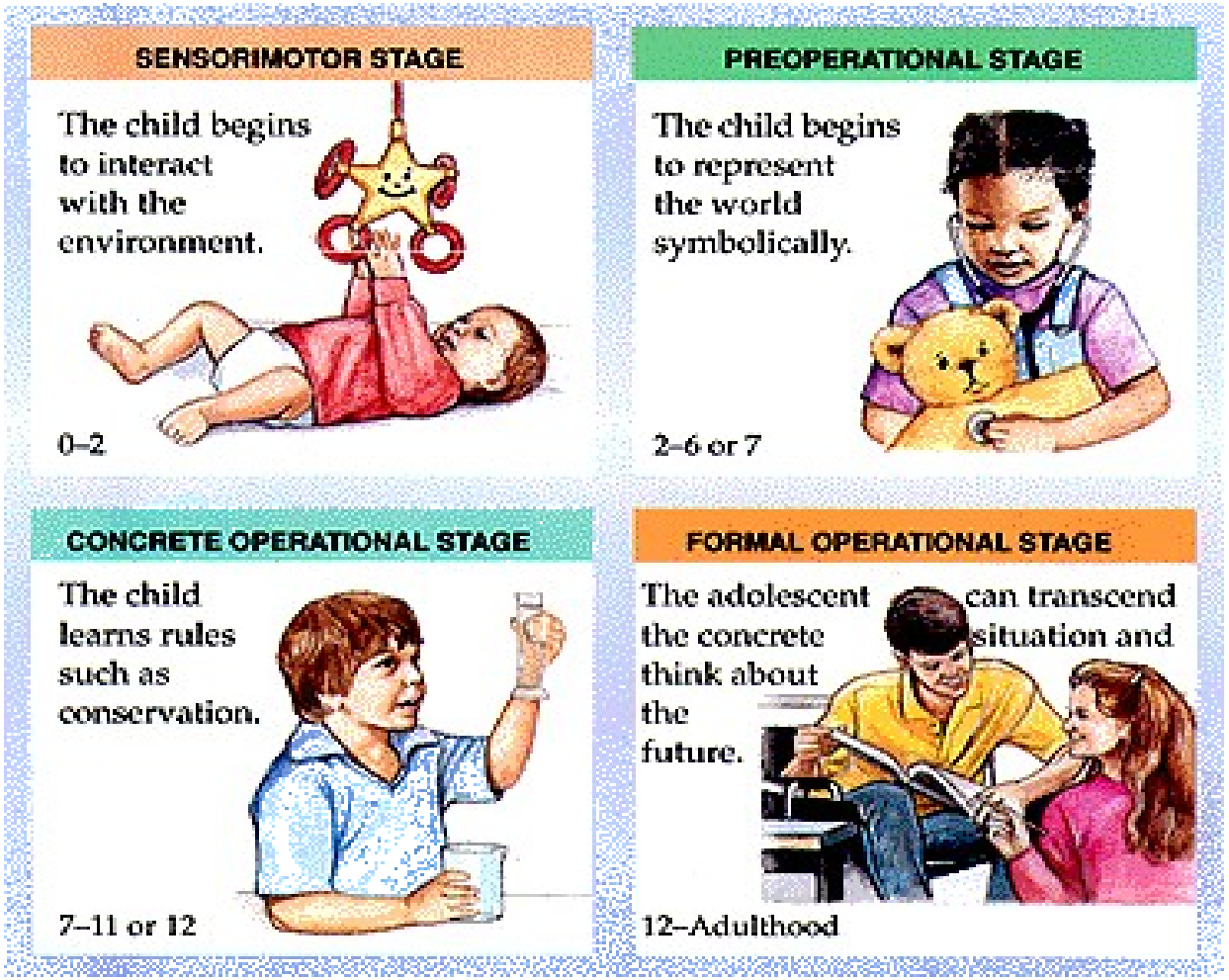
- He identified these as stages of development and argued that the nature of thinking was different at each stage of development.

Stages of Development

There are four key stages and the nature of thinking is qualitatively different at each stage:

1. Sensorimotor (0 - 2yrs).
2. Pre-operational (2-7yrs).
3. Concrete operational stage (7 - 11yr or 12).
4. Formal operational (12 - adulthood).

Four Stages

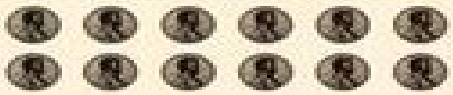
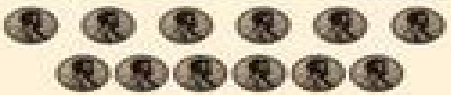

SENSORIMOTOR STAGE
The child begins to interact with the environment.
0–2
PREOPERATIONAL STAGE
The child begins to represent the world symbolically.
2–6 or 7
CONCRETE OPERATIONAL STAGE
The child learns rules such as conservation.
7–11 or 12
FORMAL OPERATIONAL STAGE
The adolescent can transcend the concrete situation and think about the future.
12–Adulthood

Concrete Operational 7-11yrs

- According to Piaget children at this stage are able to solve such problems in a logical fashion
- They understand conservation and are able to classify
- Conservation refers to the principle that the amount or number of something remains the same even if the arrangement or appearance is changed, as long as nothing is added and nothing is taken away

Woolfolk, Hughes and Walkup (2008)

Conservation Task

Conservation Task	Original Presentation	Transformation
Number	Are there the same number of pennies in each row? 	Now are there the same number of pennies in each row, or does one row have more? 
Mass	Is there the same amount of clay in each ball? 	Now does each piece have the same amount of clay, or does one have more? 
Liquid	Is there the same amount of water in each glass? 	Now does each glass have the same amount of water, or does one have more? 
Weight	Does each of the two balls of clay weigh the same? 	Now (without placing them back on the scale to confirm what is correct for the child) do the two pieces of clay weigh the same, or does one weigh more? 

https://ibpsychmajor.wordpress.com/

Stage 4: Formal Operational
(11 years old +)

- During this period of formal operational, children become capable of abstract reasoning
- They begin to understand consequences both real and hypothetical
- https://www.youtube.com/watch?v=lw36PpYPPZM&index=3&list=PL67BD44D60149F096

Formal Operational Stage of development

- Research has shown that this stage of cognitive development is not culture free
- In fact, research suggests that without exposure to appropriate schooling (e.g. secondary school) people are not able to develop formal operations (Piaget, 1972; Rogoff and Chavajay, 1995)
- Piaget also suggested that not all people pass through the four stages of cognitive development
- For instance, some adults may only show formal operations in specific areas, e.g. Religion or philosophy whilst not in other areas

Relevance for teaching in post primary context: Formal Operational Stage of Development

- If a child has not yet reached the stage of formal operational stage of development their powers of conceptualisation are closely linked to their physical activity and they need to experience problems (Fontana, 1995)

- Therefore, if this child is placed in an over-formal teacher-directed environment they will find it difficult to learn

- Children with special needs may be operating at a level below that of their chronological age – it is the responsibility of the teacher to identify the stage that the child is operating at so that they can provide the appropriate learning materials

Development defined by chronological age?

- According to Piaget, a students' ability to conceptualise and understand a problem is closely linked to their ability to experience a problem

- BUT when the student reaches the formal operational stage (11+) he/she is able to think more abstractly and does not necessarily need to experience a problem to be able to understand it

Features of Stages

- Children in all cultures go through these stages.
- The sequence of stages is always the same.
- There is progression throughout the stage.
- Children are more developed at the end of the stage than at the beginning.
- Children must be ready to move on to the next stage.

Piaget - Contribution

- On the whole, Piaget's theory has positively influenced developmental research and has opened up questions in relation to this topic of psychology

- Beilin (1992) suggests that Piaget's work remains the most complete survey of intellectual development from birth through to adolescence

In Defence of Piaget
(Lourenco and Machado, 1996)

- Piaget was talking about real understanding
- Piaget was concerned about sequences not ages
- Piaget was concerned with general understanding but he allowed for social factors
- Piaget's theory grew and developed

Piaget - What do features of his work mean for your classroom practice?

- Children learn by doing – SOMETIMES!
- Children develop at different stages
- Children move from one stage to the next by checking whether their understanding 'fits' their experience
- Piaget found out how children think by giving them tasks to do and asking them to explain how they did them
- Piaget underestimated what children could do because some of his tasks were too difficult

Piaget - Contribution

From an educational point of view, Fontana (1995) suggests that “children’s ‘failure’ to understand the questions and instructions and explanations offered to them by adults is due less to their own shortcomings than to the frequent inability of adults to present these communications to them in a form which is appropriate to the level at which conceptually they are able to function” (Fontana, 1995, p.61)

Criticisms of Piaget (Cohen, 1983)

- Piaget ignored social, economic and cultural factors
- Children can be trained to perform well on Piagetian tasks
- Piaget overemphasised logic. He did not consider more social aspects of thought, or the characteristics of everyday problem solving.
- Piaget overestimated the abilities of adolescents and adults.

Criticisms of Piaget

- Berk (2007) suggests that during the Concrete Operations stage -Training, context and cultural traditions affect development

- Berk (2003: 250) suggests that leaving children to their own devices will not always lead to cognitive growth

- Piaget underestimated the role of adult guidance

References

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- Woolfolk, A., Hughes, M., & Walkup, V. (2008). *Psychology in Education.* Harlow, Essex: Pearson Education
- Egocentrism: https://www.youtube.com/watch?v=OinqFgsIbh0&list=PL67BD44D60149F096
- Piaget Conservation: https://www.youtube.com/watch?v=B65EJ6gMmA4&index=1&list=WL
- Formal Operational Stage: https://www.youtube.com/watch?v=Iw36PpYPPZM&index=3&list=PL67BD44D60149F096x

Ongoing Independent Tasks

1. Continue reading about Effective Teaching.

2. Start to investigate within your subject through your own google searches

3. Begin to make notes that link to your Component 2.

Additional Reading / Viewing

- Video: Ted Talk by Carol Dweck

- Article:
  Article by Dweck, C., & Leggett, E. L. (1988) A social-cognitive approach to motivation and personality. Psychological Review 95(2) 256-273.

- Online document:
  Online Article by Hattie, J.(2009). Visible Learning

Further reading

- What is pedagogy? TES for information on Pedagogy

- Alexander, R. K (2008) Towards Dialogic Teaching: Rethinking Classroom Talk. (4th edition) York: Dialogos.

- Husbands, C. and Pearce, J. (2012). *What makes great pedagogy? Nine claims from research.* Nottingham, NCTL. Article Link

- Kyriacou, C. (2009). *Effective teaching in schools: theory and practice.* (3rd. Ed.) Nelson Thornes: Cheltenham **Available as an Ebook on the library**