CHRISTCHURCH

into the Melting Pot

the question is more important than the answer

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What do we teach our children?

Before the age of 6 a child will learn more easily and efficiently than at any other time in their life.

Developmental Theory Overview

Psychologists and developmental researchers have proposed a number of different theories to describe and explain the process and stages that children go through as they develop. Each focuses on a different key aspect of growth or development.
Key theories are:

- Developmental Milestones: physical, cognitive, social, emotional and communication.
- Cognitive Stages: Jean Piaget's 4 intellectual stages – sensorimotor, preoperational, concrete operational and formal operational.
- Psychosocial Stages: Erik Erikson's theory of developmental crises that occur throughout a person's lifetime – trust vs mistrust, autonomy vs shame and doubt, initiative vs guilt, industry vs inferiority and identity vs confusion are the stages relating to children.
- Psychosexual Stages: Sigmund Freud proposed 5 stages – oral, anal, phallic, latent and genital.
- Moral Stages: Lawrence Kholberg's 3 morality levels – preconventional morality, conventional morality & postconventional morality.

Cognitive Stages Overview

Piaget's (1929) cognitive stages remain the basis of most western early educational programmes, media and common-sense beliefs of adults, despite the significantly small body of research in support of his theory.

1. <u>Sensorimotor: Birth – 2 years</u>
   Experience is primarily sensory or from motor movements - looking, sucking, grasping and listening.
   Key accomplishment is learning object permanence despite lack of sound or vision of object – eg understanding an object placed in a box will remain there unchanged until someone tampers with it.
2. <u>Preoperational: 2 – 7 years</u>
   Characterised by language development and engagement in pretend symbolic play eg role play using a broom for a horse.
   Children manipulate symbols but cannot mentally manipulate information or understand concrete logic.
3. <u>Concrete Operational: 7 – 11 years</u>
   The development of logical thought about concrete events and a movement away from specific experience to more generalised principles of reasoning, eg a chocolate bar cut into pieces remains the same whole amount.
   Egocentrism disappears as children become sociocentric – they can now imagine another's point of view.

4. Formal Operational: 12 – adulthood
   Characterised by emerging abstract thought, hypothetical reasoning, deductive reasoning (what if?) and logic is used in problem solving to enable systematic planning (prior to this stage trial and error was used).

Criticisms:

- Very small research sample, mainly his own 3 children and those of well-educated professionals he knew.
- Autonomous movement through these 4 developmental stages has been disproven.
- No environmental or other external factors were considered.
- Piaget **massively underestimates the abilities of children**.

Most researchers now agree many of the abilities he based his theory upon are possessed at significantly earlier ages. For example Piaget believed at 7-11 children are able to take on another's point of view, however it is now agreed that 4-5 year olds understand their own and others mental processes.

Reality Status Decisions

The distinction between reality and non-reality is basic to human cognition. Traditionally children were thought to confuse this boundary based on Piaget's (1929) theories stating that at age 12 children still remained confused over this basic distinction. However there is now a large body of research showing that children as young as 3 years are able to make various reality status decisions eg distinguish a mental entity (thought or image) from the real physical object it represents (Estes, Wellman and Woolley 1989; Wellman and Estes 1986).

There are (historically) 4 prominent hypotheses about reality status decisions, each favouring initial credulity:

1. Piaget (1929) argued children are overly credulous due to their inability to differentiate between reality and non-reality.
2. Dawkins (1995) argued that children's early credulity bias, proven due to their mistaken belief in non-real entities and events, is adaptive to enable rapidity of learning.
3. Gilbert (1991) proposed cognitive processing derived from a Spinozan philosophical analysis of belief formation – that belief is the default state as disbelief takes more cognitive effort.
4. Morrison and Gardner (1978) proposed that children initially believe all entities and events are real and that it is social exchange which enables children to distinguish between real and non-real.

These 4 hypotheses are being questioned by more recent research:

1. Criticisms of Piaget noted previously and further expanded later on.
2. Dawkins assertion of credulity as an evolutionary trait doesn't make sense due to the amount of deception, fiction, metaphor and mistakes adults tell children. It's now believed that indiscriminate trust in all adults would be perilous and maladaptive for children.
3. Gilbert's (1991) assertion that belief is the default state of children has been overtaken by a larger body of research which shows that experience is key to a positive reality status decision. An experiment using evidence of a non-real character's existence led to increased levels of belief in 4-5 year olds but not in 3-4 year olds (Woolley, Boerger and Markman 2004). Belief required cognitive abilities unavailable to children under 4 years old.
4. In contrast to Morrison and Gardner (1978) however, most recent researchers argue that children are sceptics (albeit misguided ones) based on initial research by Eugene Stubbotsky (1993, 1994 and 2010) who showed that magical and rational views of reality co-exist throughout children's development.

The four original hypotheses argue that scepticism replaces credulity as children age however Stubbotsky argues that different aspects of people's situations will elicit different ways of thinking. It is now understood that young children believe their knowledge of the world is complete enough to deny the existence of anything new (Woolley and Ghossainy 2013). Children's insufficient ability to evaluate the scope and reliance of their knowledge (based on limited experience) leads to an over-reliance upon it when making reality status decisions. 3-9 year olds were shown a video of 2 adults talking about a novel animal (a galah – an Australian parrot) and rejected it as non-real due to their lack of experience of this animal: "I've never heard of them before. I doubt they exist"; "I've never seen one" (Woolley, Ma and Lopez-Mobilia 2011). Development therefore consists in finding a balance between acceptance and doubt – specifically a decreasing reliance on their experiential knowledge and an increased use of a range of other sources of information (Woolley and Ghossainy 2013). 4-5 year olds have been found to have difficulty identifying when an expert was needed to answer a question, instead over-estimating their own knowledge and not seeking help even when offered (Aguiar, Stoess and Taylor 2012). With development and increased cognitive abilities (specifically the ability to assess one's knowledge and it's relevance to reality status) comes an increasing ability to utilise a range of strategies to evaluate sources of information such as testimony, evidence, context etc to inform reality status decisions (Woolley and Ghossainy 2013).

Children show remarkable resistance to the possibility of improbable events (like a person drinking onion juice) and judge them as largely impossible until age 8 when they begin to judge such events as possible 65% of the time (Shtulman and Carey 2007). As well as their initial scepticism, their inability to imagine prevents them from judging these events as possible.

Overall, research shows that initial resistance to new entities (scepticism in 4 year olds) shifts to increasing acceptance (in 6 year olds) before later returning to scepticism – a bell curve not a downward trajectory as previously believed (Woolley and Ghossainy 2013).

Novel entities and events are exposed to children in western culture though books, television and films. There is now increasing evidence that young children are sceptical of the reality status of media information. Research into the responses of children to a documentary entitled March of the Penguins filmed in 2005 showed that most children believed special effects to have been used.

<u>Television</u>
5-7 year olds understanding of the reality status of television was assessed and it was found that 5 year olds believed all events shown only occurred on television and not in reality. Despite these 5 year olds being able to distinguish between real and non-real characters, events and pictures in storybooks (Samuels and Taylor 1994), there was a significant bias to non-real classification when the characters, events and pictures were on television. 7 year olds were better able to distinguish that some television was factual (Wright, Huston, Reitz and Piemyat 1994).

<u>Books</u>
Books have been the most common form of media to which children are exposed and so more research has focussed upon children's reality status decisions from stories.
Woolley and Cox (2007) presented 3-5 year old children with realistic, non-realistic and religious storybooks and asked them to state whether the characters and events were real or non-real (both the fantastical and religious stories contained scientifically impossible events).

- Children from 3-5 years differentiated real from non-real stories. Only age 5 children consistently differentiated religious from non-real in terms of the reality status of both characters and events.

- Across all three types of stories only 60% of children thought characters didn't exist and couldn't represent real people and only 30% of 3-5 year olds believed that characters were real. 3 and 4 year olds showed the same level of scepticism (37% real), however 5 year olds showed increased belief in the reality of characters in the religious books.
- The type of storybook was significant when the children were asked if an event could possibly happen. Only 18% of 3 year olds said events could happen, less than a third of 4 year olds stated that events in all three types of stories were real whilst fewer than 10% of 5 year olds stated that events in real or non-real stories were real.

Overall 5 year olds were more likely than 3 and 4 year olds to claim that both real and religious events were real. These research findings demonstrate that children are inherently sceptical and that with age children remained sceptical of non-real stories but accepted realistic and religious stories as real (Woolley and Cox 2007).

Woolley and Ghossainy (2013) argue that a number of factors pull children away from their scepticism notably testimony, evidence, context, cultural support such as engagement in rituals.

Testimony

- The use of testimony, specifically verbal endorsement, to increase belief develops in children aged 4 and 6 (Tullos, Woolley and Ikpene 2009).
- However research has shown that children take a while to assimilate teaching into their belief systems. Vosniadon and Brewer (1992) found that children initially think the earth is flat (based on their experience) and resist new information (of roundness) depicting it as disc-shaped. Siegel et al (2004) found under 8 year olds identified the sky as on top of the earth rather than all around it.
- 4 and 6 year old children were given an explanation of improbable events through testimony and photographs, however this was found to have no effect on their response as both groups (with or without explanation) put both improbable and impossible events as non-real (Woolley and Ghossainy 2013).

Context

- When new entities were given to children in a scientific context increased belief was found and this relationship develops significantly between the ages of 3 and 5.
- If an impossible event is explained by science or religion children are more inclined to reconsider their beliefs. 9-13 year olds views on conservation were challenged by three people – a magician, a psychologist or a priest. Their views were then assessed post-challenge and it was found that those challenged by the priest or psychologist were less likely to have recovered their original beliefs whilst those challenged by the magician had not changed their opinions (Chandler and Lalonde 1994).
- The type of narrative framing the discussion of a new character informed children's reality status decisions eg if the character did an impossible event it was more likely to be classed as non-real, but if the same character did a real event it was more likely to be classed as real (Corriveau, Kim, Schvalen and Harris 2009).
- 3 year olds consistently make mistakes about reality status both ways, but usually in relation to the characteristics of real or non-real entities (Woolley and Ghossainy 2013).
- At around 4-5 years old, children can differentiate between real and non-real entities on the basis of their physical, psychological and biological properties (Wellman and Gelman 1998), they know that non-real figures possess clear non-human abilities such as an ability to travel great distances instantaneously. Children at this age also demonstrated an unsure aspect to their reality status decisions which is found (to a limited extent) in the adult population (Sharon and Woolley 2004).

Children's religious reality status decisions are really interesting!
Disclaimer: only a small number of studies specifically on children's belief in religious stories have been conducted.
Religious stories are often a mixture of realistic and scientifically impossible content. Therefore children who are using testimony to make reality status decisions experience difficulty as the rules they have acquired for making this distinction do not seem to apply in a religious context (Vaden and Woolley 2011).
Children understand God has different perceptual abilities to humans – such as all-seeing and all-knowing (Barrett, Richert and Driesenga 2001).
4-6 year olds heard religious and non-religious versions of the same four stories – two familiar and two unfamiliar ones. Overall there were low to moderate levels of belief in characters and events, however higher levels of belief of reality were shown in the characters and events of the religious stories. This relationship strengthened with age. Children were more likely to say the religious events really happened or could happen in comparison to the non-religious events.

<u>God</u>

- Children who cited God showed significantly higher levels of belief in the factuality of both events and characters.
- Vaden and Woolley (2011) proposed that where normally children would judge physical violation events as non-real, when God played a role children aged 6 accepted their reality. In comparison 4 year olds were sceptical of the reality status of characters and events in stories both with and without God.

<u>Familiarity</u>

- Hearing a story in multiple contexts, read by multiple people, in multiple places and formats confers reality (Vaden and Woolley 2011).
- Children were more likely to claim familiar characters really existed than unfamiliar characters, despite all religious stories used being biblical and involving God. This trend increased with age.

<u>Familial religiosity</u>

- Boyatzis and Janicki (2003) found Christian parents didn't appear to make strong efforts to convey their religious convictions to their children. Due to a desire for their children to think deeply on their own and be free to express their own thoughts.
- However Vaden and Woolley (2011) found the higher familial religiosity was scored, the higher a child's belief was in the reality of characters and events.
- Parental belief and communication about literalness of Bible stories has been found to have no effect on children's beliefs (Vaden and Woolley 2011).

<u>Religious education</u>

- Because events (eg parting of the Red Sea) violate children's experiential knowledge you'd expect them to be judged as non-real; however events are often presented as historical by adults who have earned children's trust – who are seen as authority figures (parents or church leaders). Instruction in church confers reality status on events otherwise classed as non-real and has been found to increase children's belief (Vaden and Woolley 2011).
- Overall, scepticism decreased with age (3 to 6) due to children incorporating information from religious communities into their reality status decisions between the ages of 4 and 6 (Vaden and Woolley 2011).
- Children with higher religious education held stronger beliefs about the reality of religious characters and events despite showing that they understood the events depicted were scientifically impossible (Vaden and Woolley 2011).

Other interesting findings

The effect of emotion

Samuels and Taylor (1994) found children struggled to distinguish between non-real and real pictures of animals if events were perceived to be frightening, implying emotion is significant in children's reality status decisions.

Carrick and Quas (2006) found that if negative emotions (specifically fright or anger) were aroused in children, scepticism was increased and the incorrect labelling of real as not-real increased. The opposite happened if positive emotions were aroused – non-real was classed as real (Samuels and Taylor 1994).

The unknown effect of a higher fantasy orientation

Some children are more inclined to a higher fantasy orientation than others (and maybe adults like Tolkien, Rowling and Pratchett). However there is no conclusive research to suggest this increased fantasy orientation relates to an increased belief in non-real entities – minimal research has so far provided contradictory results.

Is there a western bias?

Research is dominated by psychologists from western cultures – mainly North America and Europe (with some Japanese input in the 1980s). However research disputes the belief that non-westerners are more credulous about entities and events that are unavailable to first-hand experience.

Research by Mead (1932) and Astuti and Harris (2008) shows that adults from Manus Island (PNG) and Madagascar respectively, were more supernatural in their thinking than children who were found to be more matter-of-fact and interested in the physical rather than spiritual properties of objects. Adults more than children believed in cognitive processes post death (Astuti, Soloman and Carey, 2004).

General literality?

An ABC news poll found 6 out of 10 adults in the USA held literal views of the Bible (Morris 2004).

80% of children up to the age of 12 years old surveyed by Goldman (1964) possessed full literal or near-literal beliefs in Bible stories.

Butcher (1991) interviewed participants aged 7-50 years old about the reality and meaning of two parables and found that children up to age 11 held literal views whilst adults held analogical views (fictitious stories conceived to represent religious beliefs).