AQA Psychology A-level

Option 1: Cognition & Development

Summary Notes

This work by PMT Education is licensed under CC BY-NC-ND 4.0

Part 1A — Piaget's Theory of Cognitive Development

Piaget (1952) proposed that children **actively construct knowledge** as they interact with their environment. Cognitive development involves changes to **schemas**, which become increasingly complex as children gain experience.

1. Schemas

A **schema** is a mental framework containing **knowledge and beliefs** about a particular object, person, place or situation.

Schemas:

- Act as **mental shortcuts**, allowing us to process information quickly.
- Help us **organise and understand new information**.
- Become more **complex and sophisticated** as we develop.
- Can sometimes cause **errors**, as new information may be interpreted using an inappropriate existing schema.

Some schemas are **innate**, such as babies' reflexive **sucking and gripping** behaviours.

2. Assimilation and Accommodation

Piaget (1952) suggested that children learn by using **assimilation and accommodation** to adapt their schemas when they encounter new information.

	Assimilation	**Accomodation**
What Happens?	New information **fits an existing schema**.	New information **does not fit**, so the schema must be **changed or a new one created**.
New Schema?	No	Yes
Example	A child who already has a **cat schema** sees a tabby cat. Although it looks different from cats they have seen before, it still fits their understanding of what a cat is. The new information is therefore **added to the existing cat schema**.	A child who has only seen **cats** sees a tiger for the first time and initially identifies it as a cat because it has four legs, fur and a tail. As the child notices that the animal is much larger, has stripes and behaves differently, their existing **cat schema is no longer sufficient**. The child therefore creates a **new tiger schema**, allowing them to distinguish between cats and tigers in the future.

3. Equilibration

Piaget suggested that children are **motivated to learn** because they want to achieve **equilibrium**.

The process works like this:

New experience → Disequilibrium → Assimilation/accommodation → Equilibrium

- **Disequilibrium** = an unfamiliar experience that the child's existing schemas cannot fully explain.
- This creates an **uncomfortable state**, motivating the child to explore and learn.
- **Equilibration** = the process of adapting schemas until the new information can be understood.
- **Equilibrium** = the child has successfully made sense of the new experience.

So, **equilibration drives cognitive development** because children continually adapt their schemas to make sense of the world.

CC BY NC ND

AO3 - EVALUATION

One strength of Piaget's theory of cognitive development is that there is **research support for the role of schemas and discovery learning. Howe et al. (1992)** studied children aged 9–12 who observed the same object moving down a slope and then discussed what they had seen. Despite witnessing the same event, the children developed **different understandings**, suggesting that they were actively interpreting information based on their existing **schemas**. This supports Piaget's idea that children construct knowledge through **assimilation and accommodation**, rather than simply absorbing information. Therefore, this evidence increases the **validity** of Piaget's explanation of cognitive development as an **active, constructive process**.

Another strength of Piaget's theory is that it has had **significant real-world applications, particularly in education. Piaget** argued that children learn best through **active exploration** and that they progress through **fixed stages** of development, meaning they are only ready to learn certain concepts at specific ages. This led to the development of **discovery learning approaches**, where teachers act as **facilitators** rather than simply delivering information. For example, activities such as using a **sandpit** can help younger children understand **conservation** through hands-on experience. Therefore, Piaget's theory has been valuable in shaping **modern educational practices**, improving how teaching is adapted to children's developmental level.

One limitation of Piaget's theory is that it is based on an **unrepresentative sample.** Much of Piaget's research was conducted on children from **middle-class, well-educated families**, often from the nursery attached to his university. This means the findings may lack **generalisability**, as children from different cultural or socioeconomic backgrounds may develop differently. For example, children from less privileged backgrounds may have different levels of **educational opportunity** or **intellectual stimulation**, which could affect their cognitive development. Therefore, Piaget's theory may not fully explain the development of **all children**, reducing its overall **validity**.

A further limitation of Piaget's theory is that it may **underestimate the role of social interaction and language in cognitive development. Vygotsky (1978)** argues that learning is a **social process**, where children develop through interactions with more knowledgeable others, such as parents or teachers. He also emphasised the importance of **language** as a key tool for thinking, whereas Piaget viewed it as just another cognitive ability. This suggests that Piaget may have placed too much emphasis on **independent discovery learning**, while neglecting how **social and cultural factors** shape development. Therefore, Piaget's explanation may be considered **incomplete**, as it does not fully account for the influence of the **social environment**.

CC BY NC ND

Part 1B — Piaget's Stages of Intellectual Development

Piaget (1952) proposed that children pass through **four stages of intellectual development**. Each stage involves new ways of thinking and reasoning.

- The **order of the stages is fixed**, so children pass through them in the same sequence.
- However, the **age at which children reach each stage can vary**.
- Piaget identified four important cognitive abilities that develop across these stages:
    - **Object permanence**
    - **Egocentrism**
    - **Class inclusion**
    - **Conservation**

The Four Stages:

1. Sensorimotor Stage

Object permanence is the understanding that an object continues to exist even when it cannot be seen. Piaget suggested that object permanence develops at around 8 months.

Example:

- A young baby sees a toy and then watches it being covered by a scarf.
- Before around 8 months, the baby may stop looking for the toy.
- After around 8 months, the baby continues to search for it, showing an understanding that the toy still exists even though it cannot be seen.

2. Pre-Operational Stage

Children develop more sophisticated **language and thinking**, but their reasoning is still limited. Three key limitations are **egocentrism, class inclusion and conservation**.

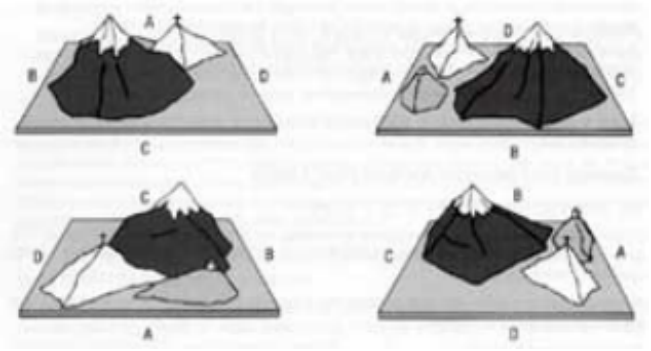
i. Egocentrism

Egocentrism is the tendency to **see the world from your own perspective** and struggle to understand another person's viewpoint.

Piaget and Inhelder (1956) tested this using the **Three Mountains Task**:

- Children were shown **three mountains**, each with different features.
- A **doll** was placed on the opposite side of the model.
- Children were asked to choose the picture showing **what the doll could see**.
- Many children chose the picture showing **their own viewpoint** rather than the doll's.

This suggested that pre-operational children struggled to **take another person's perspective**.



ii. Class Inclusion

Class inclusion is the ability to understand that an object can belong to **a smaller group and a larger group at the same time**.

Piaget and Inhelder (1964) tested this by showing **5 dogs and 2 cats** to children aged **7–8 years** and asking:

> "Are there more dogs or more animals?"

Many children answered **dogs**, even though there were more animals overall. This suggests they struggled to understand that **dogs are also part of the larger category of animals**.

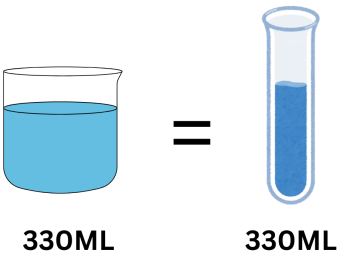
Pre-operational children (under about 7 years) are particularly likely to **fail this task**, whereas the ability to understand class inclusion develops during the **concrete operational stage**.

iii. Conservation

Conservation is the understanding that the **quantity of something stays the same even when its appearance changes**.

For example:

- Two identical beakers contain the **same amount of liquid**.
- The liquid from one beaker is poured into a **taller, thinner beaker**.
- Pre-operational children often say that the taller beaker contains **more liquid**.
- They focus on the **appearance** of the liquid rather than its actual quantity.



This also shows a lack of **reversibility**, the understanding that an action can be mentally reversed to return something to its original state.

3. Concrete Operational Stage

Children become better at **logical reasoning**, developing their understanding of:

- **Conservation**
- **Class inclusion**
- **Perspective-taking**

However, their reasoning is mainly **concrete**.

This means they can reason logically about **objects and situations that are physically present**, but may struggle with abstract ideas.

4. Formal Operational Stage

During the formal operational stage, children become capable of **abstract reasoning**.

They can:

- Think about things that are **not physically present**.
- Consider **hypothetical situations**.
- Use more **scientific and logical reasoning**.
- Think about possible explanations rather than relying only on what they can see.

Summary of 4 Stages

Stage	Age	Key Developments
Sensorimotor	0–2 years	Develops **object permanence**. Children learn through physical interaction with their environment.
Pre-operational	2–7 years	Develops **language**, but thinking is still limited. Children show **egocentrism, problems with class inclusion and lack of conservation**.
Concrete operational	7–11 years	Children develop **conservation, class inclusion and less egocentric thinking**. They can reason logically about **concrete objects and situations**
Formal operational	11+ years	Children develop **abstract and scientific reasoning**, allowing them to think about ideas that are not physically present.

CC BY NC ND

AO3 - EVALUATION

One strength of Piaget's stages of intellectual development is that **research provides some support for the idea that cognitive development occurs in a sequence of stages.** Piaget argued that children progress through a **fixed order of stages**, including the **sensorimotor, pre-operational, concrete operational and formal operational stages**, with each stage involving new ways of thinking. **Dasen (1994)** found that children **across different cultures** showed a similar order of cognitive development, although the age at which they reached each stage varied. This suggests that Piaget was correct that cognitive development follows a **universal pattern**, supporting the **validity** of his stage theory.

Another strength of Piaget's theory is that it changed how **psychologists and society viewed children's cognitive development.** Before Piaget, children were often viewed as less capable versions of adults, whereas Piaget demonstrated that children think in **qualitatively different ways** at different stages of development. His theory showed that children actively construct knowledge through processes such as **assimilation and accommodation**, rather than simply absorbing information. Therefore, Piaget's theory has been influential because it provided a new understanding of children as **active learners** who develop their thinking over time.

Piaget's theory has **important real-world applications, particularly in education.** His idea that children progress through different **stages of cognitive development** has influenced teaching methods by encouraging educators to provide activities that match children's **developmental level**. For example, younger children in the **concrete operational stage** may benefit from hands-on activities rather than abstract explanations. Therefore, Piaget's theory has had a significant impact on **educational practice**, even though some aspects of the stages have been criticised.

One limitation of Piaget's stage theory is that he may have **underestimated children's cognitive abilities.** For example, **Hughes (1975)** found that children aged 3½ to 4 years old were able to successfully complete a **policeman doll task**, suggesting that young children are capable of overcoming **egocentrism** earlier than Piaget proposed. This suggests that Piaget's findings may have been influenced by the difficulty of his tasks rather than reflecting children's true abilities. Therefore, Piaget's strict age-related stages may not accurately represent the complexity of children's cognitive development.

A further limitation of Piaget's stages of intellectual development is that **some of his research methods may have lacked validity.** Many of Piaget's tasks were difficult for children to understand, meaning failure may have been due to **confusion about the task** rather than a lack of cognitive ability. For example, **McGarrigle and Donaldson (1974)** found that 60% of children successfully completed a conservation task when the procedure was changed, compared with only 16% in Piaget's original study. This suggests that Piaget may have underestimated children's abilities because his methods did not always accurately measure their thinking. Therefore, this weakens the support for his proposed stages.

CC BY NC ND

Part 2 — Vygotsky's Theory of Cognitive Development

Vygotsky (1978) suggested that cognitive development is a **social process**. Children learn by interacting with **more knowledgeable people**, called **experts**, who help them develop new knowledge and more advanced ways of thinking.

Unlike **Piaget, Vygotsky** placed particular importance on **language and social interaction** in cognitive development.

1. The Role of Language

Vygotsky viewed **language as an important cognitive skill** that develops through **social interaction**.

- Children first use language to **communicate with others**.
- Over time, this language becomes **internalised** and is used to guide their own thinking and behaviour.
- This means that social interaction helps children develop their **individual cognitive abilities**.

Vygotsky therefore took a **domain-specific approach**, suggesting that cognitive skills such as language can develop at different rates.

This contrasts with **Piaget**, who took a more **domain-general approach**, suggesting that cognitive development occurs across a range of abilities within his stages.

2. The Zone of Proximal Development (ZPD)

The **ZPD** is the gap between:

- **What a child can do independently** – the tasks they are currently capable of completing on their own.
- **What a child can achieve with support** – tasks they cannot yet complete alone but can manage with help from a **more knowledgeable other (expert)**.

Vygotsky suggested that children can develop **new knowledge and more advanced reasoning skills** through these interactions with experts. Some knowledge and skills may therefore be **beyond the child's current independent ability**, but become achievable when the child receives appropriate support.

3. Scaffolding

Scaffolding is the **temporary support provided by an expert** to help a child complete a task within their ZPD.

For example, a teacher might **demonstrate a task, give hints or break the task into smaller steps** to help a child complete it.

As the child's ability develops, the expert gradually **reduces the amount of support**, allowing the child to take greater responsibility for completing the task independently.

Wood, Bruner and Ross (1976) identified six key scaffolding techniques:

1. **Recruitment** – encouraging the child to engage with the task.
2. **Reduction of degrees of freedom** – simplifying the task.
3. **Direction maintenance** – keeping the child focused on the goal.
4. **Marking critical features** – highlighting important aspects of the task.
5. **Frustration control** – helping to **reduce the child's frustration** and maintain their motivation to complete the task.
6. **Demonstration** – showing the child how to perform the task.

4. Intermental → Intramental

Vygotsky suggested that learning initially occurs at a **social level** before becoming part of the child's independent thinking.

- **Intermental** – knowledge and skills are developed **between people** through interaction with an expert.
- **Intramental** – the child **internalises** this knowledge so they can use the skill independently.

For example, a teacher may initially help a child solve a maths problem. Through **scaffolding**, the child learns the method and eventually becomes able to use it **without the teacher's help**.

This shows how learning moves from **social interaction → independent thinking**.

AO3 - EVALUATION

One strength of Vygotsky's theory is that there is **research support for the importance of the Zone of Proximal Development and learning through social interaction. Roazzi and Bryant (1998)** found that 4–5-year-old children who received help from older, more experienced peers were able to make more accurate estimates of the number of sweets in a box compared with children who worked independently. This supports Vygotsky's idea that children can achieve a higher level of reasoning when supported by a **more knowledgeable other** within their ZPD. The support provided by the older peer acted as a form of **scaffolding**, helping children develop skills they could not achieve alone. Therefore, this

CC BY NC ND

provides support for Vygotsky's explanation that cognitive development is improved through **social interaction and guided learning**.

Another strength of Vygotsky's theory is that research supports the importance of scaffolding in cognitive development. Conner and Cross (2003) observed **45 mother-child pairs** completing **problem-solving tasks** over a **three-year period**. They found that mothers gradually **reduced the amount of support** they provided, while children became increasingly successful at completing tasks independently. This supports Vygotsky's view that **experts provide temporary guidance** which is gradually removed as children become more competent. This suggests that learning occurs through a process of **supported interaction**, where children move through their **Zone of Proximal Development (ZPD)** towards **independent performance**. Therefore, Vygotsky's theory has strong **practical value** because it explains how **adults and teachers** can support children's learning.

Vygotsky's theory has important **real-world applications in education, particularly through collaborative learning and scaffolding.** His concept of the **Zone of Proximal Development (ZPD)** suggests that children learn best when tasks are slightly beyond their current ability but achievable with support from a **teacher or more knowledgeable peer**. This has influenced teaching methods such as **peer tutoring**, **group work** and **guided learning**, where teachers provide temporary support before gradually encouraging **independence**. This reflects Vygotsky's view that learning occurs through **social interaction** and support from others. Therefore, Vygotsky's theory has been valuable in shaping **modern educational practices** by highlighting the importance of **social support** in learning.

One limitation of Vygotsky's theory is that it may **underestimate the importance of independent exploration in cognitive development.** Vygotsky argued that children develop through **social interaction** with more knowledgeable others, suggesting that learning from others is the main driver of development. However, **Piaget (1952)** argued that children actively construct knowledge through **discovery learning**, where they explore their environment and develop their own understanding. This suggests that children may not always require guidance from others to develop new cognitive skills. Therefore, Vygotsky's theory may overemphasise the role of **social learning** and fail to recognise the importance of children independently constructing knowledge.

A further limitation of Vygotsky's theory is that it may make **incorrect assumptions about how children learn.** Vygotsky suggested that similar social interactions should lead to similar improvements in children's understanding. However, **Howe et al. (1992)** found that children who observed the same event (an object sliding down a slope) **developed different interpretations** and explanations of what they had seen. This suggests that children actively construct their own understanding based on their existing **schemas and experiences**, rather than simply adopting knowledge from social interactions. Therefore, Vygotsky may have underestimated the **role of individual interpretation** in cognitive development.

CC BY NC ND

Part 3 — Baillargeon's Explanation of Infant Abilities

Baillargeon (1985) argued that babies have **more advanced cognitive abilities from an early age** than **Piaget** suggested. She proposed that infants have some **innate knowledge of the physical world** and can form expectations about how objects should behave.

1. Physical Reasoning System (PRS)

The **PRS** is an **innate cognitive system** that helps babies understand how objects behave and interact.

It allows babies to:

- Develop **expectations** about objects.
- Recognise when an event **does not match these expectations**.
- Pay greater attention to **surprising events**.
- Develop their understanding of the **physical world**.

Baillargeon suggested that this knowledge is organised into **event categories**, with each category representing a particular way in which objects interact.

2. Violation of Expectation

Baillargeon (1985) developed the **Violation of Expectation (VOE)** method to investigate infants' understanding of the **physical world**.

The idea is that if a baby has an understanding of how an object **should behave**, they will be **surprised when this expectation is violated**.

This can be measured through **looking time**:

- **Expected event → shorter looking time**
- **Unexpected event → longer looking time**

This is important because it allows researchers to investigate what babies **understand**, rather than relying on whether they are motivated to reach for or search for an object.

3. Object Persistence

Baillargeon et al. (1985) used **VOE** research to challenge **Piaget's** claim that **object permanence develops at around 8 months**. **Piaget** assumed that if a baby stopped searching for an object that had disappeared from view, they did not understand that it still existed.

Baillargeon argued that this could have other explanations, such as a lack of **motivation, attention or interest**. Instead, she used **looking time** to investigate infants' understanding.

CC BY NC ND

Key study; Baillargeon et al. (1985)

Participants	Tested **24 infants aged 5.5 – 6 months**
Procedure	• Infants watched a **rabbit move behind a screen**. • In the **possible condition**, the rabbit could realistically disappear behind the screen. • In the **impossible condition**, a **tall rabbit disappeared completely**, even though it was too tall to be hidden by the screen. • The impossible event therefore **violated the infants' expectations**.
Findings	• Infants looked at the **impossible event for 7.96 seconds longer** than the possible event. • Baillargeon concluded that the infants understood that the rabbit **continued to exist behind the screen** and that its height should remain the same.
Conclusion	This suggests that **object persistence may develop at around 5 months**, earlier than Piaget's estimate of 8 months.

4. Containment and Support

Baillargeon also investigated other aspects of infants' understanding of the physical world using **VOE**.

Baillargeon and Hespos (2001) investigated:

- **Containment** – understanding that an object continues to exist **inside a container**, even when it cannot be seen.
- **Support** – understanding that an object will **fall when unsupported**, but remain in place when resting on a stable surface.

The VOE method was used to see whether infants **looked for longer when these expectations were violated**.

For example, if an object appeared to remain in place when there was **nothing supporting it**, this would be an **unexpected event**. Longer looking would therefore suggest that the infant **expected unsupported objects to fall**.

This provides further evidence that infants have an **early understanding of how objects behave and interact**, rather than developing all physical knowledge gradually through experience.

CC BY NC ND

AO3 - EVALUATION

One strength of Baillargeon's research is that her **method has greater validity than Piaget's. Piaget (1954)** argued that infants do not develop **object permanence** until around 8 months, based on tasks where infants had to physically search for hidden objects. However, this may have underestimated infants' abilities because failure could have been due to a lack of **motor skills, attention or motivation**, rather than a lack of understanding. Baillargeon's **violation of expectation (VOE)** method only required infants to look at an event and measure their **looking time** when their expectations were violated. Therefore, Baillargeon's research may provide a more **accurate and reliable measure** of infant cognition because it removes the need for infants to physically respond.

Another strength of Baillargeon's theory is that **research supports the idea that infants have an early physical reasoning system (PRS).** Baillargeon argued that infants are born with basic expectations about the physical world, including principles such as **solidity, continuity and cohesion**, which are refined through experience. Supporting evidence comes from **Hespos and van Marle (2012)**, who concluded that infants possess basic representations of the physical world from very early in development, which are later developed through learning and experience. This supports Baillargeon's view that some aspects of cognitive development are **innate**, rather than developing entirely through experience. Therefore, the research provides support for the existence of an early **foundation of cognitive abilities** in infants.

Baillargeon's research has important **real-world applications because it has changed our understanding of infant abilities.** Her findings suggest that infants are capable of more advanced **cognitive processing** than previously believed, meaning parents and caregivers may provide richer environments with more opportunities for exploration and learning. This has influenced approaches to **early childhood education** by recognising that infants are active learners from a very young age. Therefore, Baillargeon's work has contributed to improving our understanding of **infant cognitive development**.

One limitation of Baillargeon's research is that it assumes that **infants' looking behaviour reflects cognitive understanding. Bremner (1994)** argued that there is an important distinction between a **behavioural response** and true **behavioural understanding**. For example, although infants may look longer at an impossible event, this does not necessarily mean they understand why the event is impossible or that they can consciously reason about the physical world. Therefore, Baillargeon may have **overestimated infants' cognitive abilities** by interpreting longer looking times as evidence of understanding, reducing the **validity** of her conclusions.

A further limitation of Baillargeon's VOE research is that it may be **difficult to determine the cause of infants' increased looking time.** Baillargeon assumes that infants look longer at impossible events because their **expectations have been violated**. However, there may be alternative explanations, such as the impossible event simply being more **interesting, unusual or visually complex**. This means researchers cannot be certain that infants are experiencing surprise or understanding the physical principles involved. Therefore, VOE research may struggle to draw **causal conclusions** about infants' cognitive abilities.

CC BY NC ND

Part 4 — Social Cognition: Selman's Levels of Perspective-Taking

Perspective-taking is the ability to understand and consider **another person's viewpoint**, including their **thoughts, feelings and beliefs**.

There are two main forms:

- **Physical perspective-taking** – understanding **what another person can see from their physical viewpoint**, even when it is different from your own.
- **Social perspective-taking** – understanding another person's **thoughts, feelings, beliefs and viewpoint** in a social situation.

Selman (1971) investigated **social perspective-taking** and suggested that the ability to understand other people's viewpoints **develops with age**, becoming increasingly complex.

Participants: 60 children – 10 boys and 10 girls at each of ages **4, 5 and 6 years**.

Procedure: Children completed a series of **perspective-taking tasks**, including the *Holly and her kitten* task.

- Holly's **kitten becomes stuck in a tree**, but she has promised her father that she will **not climb trees**.
- Holly must decide whether to **break her promise and rescue the kitten**.
- Children were asked questions about the **thoughts and feelings of Holly, her father and her friend**.
- Their responses were used to assess their ability to **understand different perspectives**.

Findings: There were clear **age-related differences** in perspective-taking.

- **Younger children** were more likely to focus on **their own viewpoint**.
- **Older children** were increasingly able to recognise that other people could have **different thoughts, feelings and perspectives**.
- By around **6 years**, children showed a greater ability to consider **other people's viewpoints**, rather than simply assuming that everyone saw the situation in the same way.

Conclusion: Selman concluded that **perspective-taking develops with age**, becoming increasingly complex as children become better able to understand **other people's viewpoints and multiple perspectives**.

Based on his wider research into children's perspective-taking, **Selman** proposed five levels of development. Each level represents an increasingly complex ability to understand other people's viewpoints.

Levels of Perspective-Taking

Level	Age	Description
Level 0: Socially Egocentric	3–6 years	Children struggle to understand that other people may have **different thoughts, feelings or perspectives** from their own.
Level 1: Social Information Role-Taking	6–8 years	Children understand that people can have **different perspectives**, but can only consider **one perspective at a time**.
Level 2: Self-Reflective Role-Taking	8–10 years	Children can understand **another person's viewpoint** and recognise that the other person can also have thoughts and feelings about **their own viewpoint**. However, they still mainly consider **one perspective at a time**.
Level 3: Mutual Role-Taking	10–12 years	Children can consider **multiple perspectives at the same time** and understand how different people may view the same situation.
Level 4: Social and Conventional System Role-Taking	12+ years	Children understand that simply taking different perspectives is not always enough. **Social rules and conventions** are needed to maintain order and resolve disagreements.

CC BY NC ND

AO3 - EVALUATION

One strength of Selman's theory is that there is **research support for the idea that perspective-taking develops with age. Buijzen and Valkenburg (2008)** found that children's **perspective-taking abilities** became more advanced as they got older, which was linked to fewer **parent-child conflicts** in situations such as supermarkets. This supports Selman's idea that children gradually become better at understanding the thoughts and viewpoints of others as they develop. Therefore, this provides support for the idea that **perspective-taking is an important part of social cognition development**.

Another strength of Selman's theory is that it has useful **practical applications in understanding difficulties with social cognition. Marton et al. (2009)** found that children with **ADHD** performed worse than neurotypical children on **perspective-taking tasks**, particularly when understanding situations and considering the consequences of characters' actions. This suggests that difficulties with perspective-taking may contribute to some social problems experienced by children with developmental disorders. Therefore, Selman's theory may help identify specific **social cognition impairments**, allowing more effective interventions to be developed.

A further strength of Selman's theory is that it has been **developed to provide a broader explanation of social cognition**. **Schultz et al. (2003)** extended Selman's original theory by suggesting that social cognition involves more than simply **taking another person's perspective**. They identified **interpersonal understanding**, **interpersonal negotiation strategies**, and **awareness of the personal meaning of relationships**. This suggests that Selman's original theory may have been **too narrow**, as successful social interaction also requires understanding relationships and managing **conflicting viewpoints**. Therefore, the later research provides a **more complete explanation of social cognition**.

One limitation of Selman's theory is that the **role of perspective-taking in social behaviour is unclear.** Although **Buijzen and Valkenburg (2008)** suggested that improved perspective-taking may reduce conflict, **Gasser and Keller (2009)** found that **bullies** did not show impairments in perspective-taking abilities. This suggests that children can understand another person's thoughts and feelings but still choose to behave aggressively. Therefore, perspective-taking alone may not explain the development of **prosocial or antisocial behaviour**, reducing its explanatory power.

A further limitation of Selman's theory is that it may place **too much emphasis on cognitive factors in social development.** Selman argued that social cognition develops through increasing levels of **perspective-taking**, but other factors may also influence social understanding, such as **theory of mind** and **mirror neurons**. For example, **Baron-Cohen et al. (1985)** suggested that difficulties with **theory of mind** contribute to social difficulties in autism, while **Ramachandran (2000)** highlighted the possible role of **mirror neurons** in understanding others' actions and emotions. Therefore, reducing social cognition to perspective-taking alone may provide an **incomplete explanation** of social development.

CC BY NC ND

Part 5 — Social Cognition: Theory of Mind (ToM)

Theory of Mind (ToM) is the ability to understand that **other people have their own thoughts, beliefs, feelings and intentions**, which may be different from our own.

ToM involves being able to **"mind-read"** what another person might be thinking or feeling based on their behaviour and the situation.

For example, a child may understand that:

- Someone can **want something different** from them.
- Someone can **feel differently** about the same situation.
- Someone can have a **belief that is different from reality**.
- Someone's **beliefs and feelings can influence their behaviour**.
- Other people can have **intentions** that are not immediately obvious.

False-Belief Tasks

A key way of assessing ToM is through **false-belief tasks**.

A **false belief** occurs when someone believes something that is **not actually true**. Understanding this requires a child to recognise that **another person's knowledge can be different from reality**.

Baron-Cohen et al. (1985): Sally-Anne Study

Aim	To investigate whether **autistic children have a Theory of Mind**, specifically whether they can **understand and predict another person's beliefs**, even when those beliefs are **different from reality**.
Participants	**61 participants in total**: • **20 children with autism** • **14 children with Down syndrome** • **27 neurotypical children**
Procedure	Children completed the **Sally-Anne task**. • Sally places a **marble** in one location and leaves the room. • Anne moves the marble to a **different location**. • The child is asked **where Sally will look for the marble**. To answer correctly, the child must understand that **Sally believes the marble is still in its original location**, even though they know it has moved.
Findings	• **Neurotypical** control group: **85%** (23 out of 27) answered correctly • Children with **Autism**: **20%** (4 out of 20) answered correctly. • Children with **Down syndrome**: **86%** (12 out of 14) answered correctly.

CC BY NC ND

Conclusion	Children with Autism children were less likely to recognise that **another person can hold a belief that differs from their own knowledge and from reality**. This supports the idea that difficulties with **Theory of Mind** may be associated with autism.

Revision tip; This study can be used as AO1 or AO3 depending on the question!

Understanding Intentions

ToM also involves understanding **other people's intentions**, rather than simply copying what they physically do.

Meltzoff (1988) investigated this using **intentional reasoning tasks** with **18-month-old infants**.

- Infants watched an adult **attempting to put beads into a jar**.
- The adult **failed to complete the action**.
- The infants then attempted the task themselves.
- They reproduced the **intended goal**, rather than copying the unsuccessful action.

This suggests that children can understand **another person's intentions from a very young age**, even before they can complete more complex **false-belief tasks**

AO3 - EVALUATION

Another strength of Theory of Mind explanations is that they have **useful practical applications in understanding social development.** As children develop ToM abilities, they become increasingly able to recognise that other people have their own **beliefs, desires and intentions**, which may differ from their own. This allows children to understand jokes, deception, empathy and social rules, which are important for forming relationships. This understanding has influenced approaches in **education and support programmes**, where children can be helped to develop social communication skills. Therefore, Theory of Mind has practical value because it helps explain and support the development of **mature social cognition**.

Another strength of Theory of Mind is that there is **strong research support for the idea that children gradually develop an understanding of other people's mental states. Wellman, Cross and Watson (2001)** conducted a **meta-analysis of 178 studies** investigating children's performance on false-belief tasks. They found a **consistent developmental pattern**, with children's performance improving from below chance to above chance during the preschool years, and this pattern was found across different countries and task variations. This supports the idea that understanding **beliefs and other mental states develops during childhood**, rather than being a fixed ability. Therefore, the large amount of supporting research increases confidence in **Theory of Mind as an explanation of the development of social cognition.**

One limitation of Theory of Mind explanations is that **understanding others does not always lead to appropriate social behaviour.** Although ToM explains how individuals understand other people's thoughts and emotions, this does not necessarily determine how they choose to behave. For example, someone may understand that another person is upset but still choose to act in an aggressive or selfish way. This suggests that social behaviour is influenced by additional factors, such as **emotion, personality and moral development**, rather than ToM alone. Therefore, Theory of Mind may explain **social understanding**, but it provides an incomplete explanation of **prosocial and antisocial behaviour**.

A further limitation of Theory of Mind explanations is that it is **difficult to distinguish ToM from perspective-taking.** Both involve understanding another person's thoughts, emotions and intentions, meaning researchers may not be measuring two separate abilities. For example, **Meltzoff (1995)** found that children were able to understand an adult's intentions during problem-solving tasks, but this could be explained by either recognising the adult's mental state (**Theory of Mind**) or simply taking the adult's perspective. Therefore, it is difficult to identify the exact mechanisms involved in social cognition, reducing the **theoretical value** of ToM as a separate explanation.

CC BY NC ND

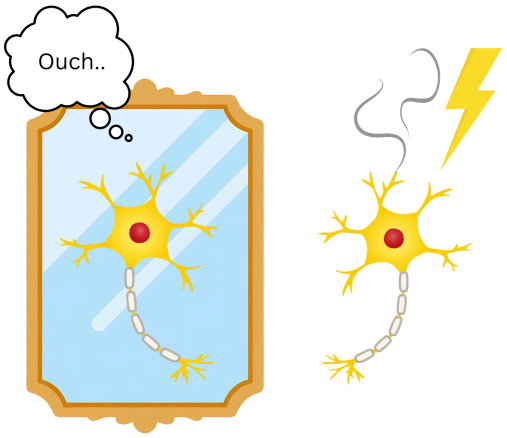
Part 6 — Social Cognition: The Mirror Neuron System

Mirror neurons are specialised neurons that become active when we **perform an action ourselves** and when we **observe someone else performing the same action**.

They are thought to be located in areas involved in **movement and motor processing**, including the:

- **Premotor cortex**
- **Supplementary motor area**
- **Primary somatosensory cortex**
- **Inferior parietal cortex**

Mirror Neurons and Social Cognition



Goldman and Gallese (1998) suggested that the mirror neuron system helps us understand the **intentions behind other people's actions**.

When we observe another person performing an action, the mirror neuron system **simulates that action within our own motor system**. This allows us to use our own experience of performing the action to help understand **what the other person intends to do**.

For example:

> Seeing someone yawn → the mirror neuron system becomes active → we automatically feel the urge to yawn ourselves.

Understanding another person's **intentions** is an important part of **social cognition**, as it helps us interpret and respond appropriately to other people's behaviour.

Evolution of the Mirror Neuron System

Ramachandran (2011) suggested that mirror neurons may have contributed to humans becoming a **social species**.

He argued that mirror neurons could have provided an **evolutionary advantage** because they allow people to learn through **observing and imitating others**.

For example, observing others could help individuals learn:

- **Language and communication**
- **Practical skills**, such as hunting and cooking
- Other useful behaviours without needing to learn everything through **direct experience**.

This may have improved survival and therefore contributed to the development of the mirror neuron system through **natural selection**.

AO3 - EVALUATION

One strength of the mirror neuron system explanation is that **research provides support for its role in social cognition. Mouras et al. (2008)** found that activity in the **pars opercularis** (located in the inferior frontal gyrus / Broca's area), an area associated with the mirror neuron system, increased when participants watched sexual behaviour. This suggests that observing another person's actions may activate similar neural responses in the observer, allowing individuals to understand and internally represent another person's experiences. Therefore, mirror neurons may play an important role in **perspective-taking and understanding others' emotions and intentions**.

Another strength of the mirror neuron system explanation is that it provides a **possible explanation for empathy and imitation.** Mirror neurons may allow individuals to simulate another person's actions and emotions internally, helping them understand what others are experiencing without having the same experience themselves. This could explain why humans are able to develop skills such as **empathy, imitation and emotional understanding**. Therefore, the mirror neuron system provides a useful explanation of how biological processes may contribute to **social cognition**.

One limitation of the mirror neuron system explanation is that evidence for its role in social cognition is mainly **correlational.** Much research assumes that increased activity in areas such as the **pars opercularis** represents mirror neuron activity, but mirror neurons are difficult to measure directly in humans. **Hickok (2009)** argued that even if mirror neurons exist, their role may have been misunderstood, as understanding another person's intentions is more complex than simply observing and copying their actions. Therefore, conclusions about the importance of mirror neurons in social cognition may be **overstated**.

A further limitation of the mirror neuron explanation is that it may be **too simplistic in explaining differences in social cognition.** The **Broken Mirror Neuron Hypothesis** suggests that reduced mirror neuron functioning contributes to difficulties in understanding others, particularly in autism. However, **Hadjikhani (2007)** found that although some individuals showed differences in areas associated with mirror neurons, not all individuals showed these abnormalities. This suggests that mirror neuron differences are not a universal explanation for social cognition difficulties. Therefore, the role of mirror neurons may have been **overestimated**, as social cognition is likely influenced by multiple factors.

CC BY NC ND