11.2 Baillargeon's Infant Research and the Development of Social Cognition

AQA 7182 · about 60 minutes · Write-in edition

Total Marks

Name: _____ Date: ____ / ____ / _____

At least four questions require full-sentence answers. Spend about 80 minutes on this pack; allocate approximately 30 minutes to short questions, 20 minutes to applied questions, and 30 minutes to the 16-mark essay.

1 Outline one practical implication of recognising early infant competence from Baillargeon-style findings for early childhood education or parenting, and state one caution that follows from the methodological limits of VOE evidence.

(Total for Question 1 is 2 marks)

2 Outline the violation-of-expectation method as used in infant research. Name the main behavioural measure researchers record and explain the logic connecting that measure to infants' expectations.

(Total for Question 2 is 2 marks)

3 Outline Selman's levels of perspective-taking in social cognition and state how many developmental levels he proposed.

(Total for Question 3 is 3 marks)

4 Outline the Reading the Mind in the Eyes test and explain briefly which aspect of social cognition it is designed to measure.

(Total for Question 4 is 3 marks)

5 Apply the Sally-Anne false-belief task to this scenario. Two-year-old Amelia watches Sally place a marble in a basket. Sally leaves. While Sally is away, Anne moves the marble into a box. Amelia looks at where Sally will search for the marble. Identify whether Amelia is likely to pass or fail a standard false-belief test at this age, and justify your answer briefly with reference to typical developmental milestones in theory of mind.

(Total for Question 5 is 6 marks)

6 Outline one limitation of using clinical or correlational evidence from autism spectrum conditions to support claims about theory of mind development in the typical population, and explain the implication for theory of mind research.

(Total for Question 6 is 4 marks)

7 Discuss Baillargeon's research and explanations for early infant abilities or, alternatively, discuss explanations for the development of social cognition including theory of mind and mirror neurons. In your answer evaluate methodological strengths and limitations, and the extent to which the evidence supports claims about early competence or mechanisms of social cognition. Refer to empirical findings and methodological critique where appropriate.

(Total for Question 7 is 16 marks)

8 Outline the mirror neuron system hypothesis for social cognition in humans. Include one piece of evidence used to support the role of mirror neurons and one limitation of the evidence base.

(Total for Question 8 is 6 marks)

9 Outline two methodological criticisms of violation-of-expectation studies when they are interpreted as showing infants have knowledge of physical principles, and explain why each criticism matters.

(Total for Question 9 is 4 marks)

Mark scheme · 11.2 Baillargeon's Infant Research and the Development of Social Cognition

Question 1

outlines a practical implication, e.g. supporting more stimulating interaction with infants because they may understand more about objects and events than previously thought oe	**B1**
states a caution, e.g. that VOE evidence is indirect and may not demonstrate explicit knowledge, so educational approaches should not overinterpret infants as having adult-like understanding oe	**B1**

Answer: Implication: caregivers and educators might provide richer object play and explanation earlier, since infants may be sensitive to physical events. Caution: because VOE measures are indirect, we should avoid assuming infants have adult-like explicit knowledge and seek converging evidence before changing practices dramatically.

Question 2

states that infants are shown possible and impossible events and that researchers record looking time as the main measure oe	**B1**
explains that longer looking at an impossible event is interpreted as the infant noticing a violation of expectation about how the world works oe	**B1**

Answer: Infants are shown possible and impossible events while researchers measure looking time. Longer looking at an impossible event is taken to indicate the infant's expectation was violated.

Question 3

states that Selman proposed a sequence of stage-like levels in which children gain the ability to take another's perspective oe	**M1**
gives brief names or descriptions of levels, e.g. undifferentiated, social-informational, self-reflective, third-person, societal perspective oe	**A1**
states the total number of levels as five cao	**B1**

Answer: Selman proposed five developmental levels of perspective taking, from an undifferentiated viewpoint through social-informational and self-reflective stages to third-person and societal perspective.

Question 4

states that the test asks participants to look at photos of the eye region and choose which emotion or mental state is shown from several options oe	**M1**
explains it measures advanced mental state attribution or emotion recognition from subtle facial cues, often used as a test of theory of mind in older children and adults oe	**A1**
may mention that it is used in research with autism spectrum conditions to assess difficulties in recognising mental states from limited social cues oe	**B1**

Answer: Participants view photos of the eye region and choose which emotion or mental state is shown from options. The test measures advanced mental state attribution or emotion recognition from subtle facial cues and is used in research on social cognitive abilities.

Question 5

identifies that a typical two-year-old would fail the Sally-Anne false-belief task oe	**M1**
states that at age two children usually do not yet reliably understand that others can have false beliefs oe	**A1**
predicts Amelia will point to or look at the box or indicate that Sally will search where the marble actually is, not where Sally left it oe	**M1**
justifies using typical age findings, e.g. many children begin to pass verbal false-belief tasks around age four, with earlier implicit understanding suggested by some infant VOE studies but not sufficient for the standard test oe	**A1**
links to theory of mind development, noting the distinction between early implicit competence and later explicit, verbally reportable false-belief understanding oe	**M1**
concludes briefly that Amelia would therefore typically be expected to fail the explicit Sally-Anne test at two years old oe	**A1**

Answer: A typical two-year-old like Amelia would fail the standard Sally-Anne false-belief task and tend to indicate Sally will look in the box where the marble actually is. Explicit false-belief understanding usually emerges around age four, though some infant VOE studies suggest earlier implicit competence.

Question 6

identifies a limitation, e.g. that much ToM evidence in autism comes from clinical group comparisons or correlations between ToM tests and social outcomes, which do not establish causal mechanisms oe	**M1**
explains the limitation, e.g. group differences may reflect many factors including language ability, IQ or experiential differences rather than a specific ToM deficit oe	**A1**
identifies an implication, e.g. generalising from atypical populations to typical developmental processes can be problematic because causal inferences are weak oe	**M1**
explains the implication, e.g. researchers need longitudinal, experimental or multimodal evidence to clarify developmental mechanisms rather than relying solely on cross-sectional clinical comparisons oe	**A1**

Answer: A limitation is that evidence from autism often uses clinical group comparisons or correlations, which are not causal. Differences may be due to language, IQ or experience rather than a specific ToM mechanism. Thus generalising to typical development is problematic and ToM research needs longitudinal, experimental or multimodal evidence to clarify mechanisms.

Question 7

Level 4 Knowledge of Baillargeon or social cognition explanations is accurate and well developed. Discussion is thorough and balanced, including detailed methodological evaluation and consideration of alternative interpretations. There is effective use of empirical findings and clear argument about the strength of evidence. The answer is coherent, well organised and uses specialist terminology appropriately.	**13-16**

Level 3 Knowledge is clear with good detail. Discussion evaluates evidence and methods, but may be less comprehensive or slightly unbalanced. There is use of empirical examples and some consideration of alternative explanations. The answer is mostly organised and uses relevant terminology.	**9-12**
Level 2 Knowledge is present but basic. Evaluation is limited or superficial, with few empirical examples and limited alternative interpretations. Argument may be descriptive rather than analytic. Organisation and use of terminology may be inconsistent.	**5-8**
Level 1 Knowledge is minimal and answers may be a list. Little or no evaluation. Little use of evidence or theory. Response lacks coherence and relevant terminology is absent or used incorrectly.	**1-4**
Level 0 No creditable content.	**0**

Indicative content:

- AO1: Baillargeon's violation-of-expectation studies used looking time to infer that infants as young as a few months show surprise at physically impossible events, taken to indicate early object permanence or physical reasoning.
- AO1: Details of typical VOE findings, for example infants looking longer when an occluded object appears to pass through a solid barrier or when an object does not reappear where expected.
- AO1: Explanations for early competence include innate core knowledge systems for objects and physical causality, and the idea that implicit knowledge precedes explicit, reportable understanding.
- AO1: Social cognition explanations include theory of mind development measured by false-belief tasks, Selman's levels for perspective-taking, the Reading the Mind in the Eyes test for mental state attribution, and the proposal that mirror neuron systems support imitation and action understanding.
- AO3: Methodological strengths of VOE include careful control of visual stimuli, repeatable trial structures and the ability to investigate very young infants who cannot perform tasks requiring verbal response.
- AO3: Methodological limitations: looking time may index perceptual novelty, low-level attention or memory rather than conceptual expectation; alternative converging measures are needed to strengthen claims.
- AO3: Challenge of interpretation between implicit and explicit competence, e.g. infants may show anticipatory looking yet fail explicit search tasks, so researchers must be cautious about equating VOE results with adult-like conceptual knowledge.
- AO3: For theory of mind, strengths include a wide body of evidence using diverse tasks and populations, but many findings rely on cross-sectional or correlational designs, and clinical comparisons with autism are informative but do not prove causal mechanisms in typical development.
- AO3: Mirror neuron evidence strength comes from animal single-cell recordings and human neuroimaging showing overlapping action observation and execution activity; but direct causal evidence in humans is limited and alternative accounts exist for observed activations.
- AO3: Theoretical issues: multiple mechanisms may contribute to social cognition, including language development, executive function, social experience and innate predispositions; evidence often points to interaction between these factors rather than a single explanatory system.
- AO3: Practical implications and applications, e.g. understanding early competence affects early education and intervention approaches; limits of the evidence suggest caution before revising developmental stage models wholesale.
- AO3: Balanced conclusion should weigh the merits of Baillargeon style evidence for revising views on early competence against methodological caveats, and similarly weigh neuroscientific claims about mirror neurons against their current empirical limits, recommending further converging, longitudinal and experimental evidence.

Question 8

outlines that the mirror neuron system refers to brain cells that fire both when a person performs an action and when they observe the same action performed by another, and that this has been proposed to support imitation and understanding of others' actions oe	**M1**
gives one supporting piece of evidence, e.g. single cell recordings in macaques, or neuroimaging studies showing overlapping activation in premotor and inferior parietal areas during action observation and execution oe	**A1**
explains how this evidence is taken to support imitation or action understanding in humans oe	**A1**
identifies a limitation such as most direct single neuron evidence coming from non-human primates, human evidence being largely correlational neuroimaging, and uncertainty about whether mirror neuron activity causes understanding oe	**M1**
explains why this limitation matters, e.g. correlational brain activation does not prove a causal role and alternative explanations exist for the observed activations oe	**A1**
may mention that the functional significance of mirror-like activity in complex social cognition remains debated and that replication and causal evidence are still developing oe	**A1**

Answer: The mirror neuron system hypothesis proposes that neurons fire both when performing and when observing actions, supporting imitation and understanding others. Support comes from macaque single cell recordings and human neuroimaging showing overlapping activation during action observation and execution. Limitations include that direct single neuron evidence is from animals, human evidence is correlational so causation is not established, and the precise role of mirror activity in complex social cognition remains debated.

Question 9

identifies a methodological criticism, e.g. that longer looking may reflect low-level perceptual preference, novelty, or interest rather than conceptual understanding oe	**M1**
explains the criticism, e.g. infants might look longer at a physically impossible event because it is more visually surprising or salient, not because they hold an expectation about object permanence oe	**A1**
identifies a second linked point, e.g. difficulties in ruling out alternative explanations without converging measures such as anticipatory eye movements or active search behaviour oe	**M1**
explains why it matters: if looking time does not uniquely index conceptual expectation, claims about early cognitive competence may be overstated and require additional converging evidence oe	**A1**

Answer: One criticism is that longer looking may reflect perceptual novelty or salience rather than conceptual understanding. Without converging measures such as anticipatory looking or active search, looking time alone may not prove infants hold expectations about physical principles, so claims about early competence could be overstated.