

Sample Answer:

Renee Baillargeon wanted to show how young children develop a cognitive understanding of the world around them and her research furthered our understanding of Piaget's theory of cognitive development. Baillargeon's explanations of early infant abilities include knowledge of the physical world and violation of expectation research. Knowledge of the physical world refers to our understanding of how the physical world works. For example, object permanence in infants (knowing that an object still exists despite not being seen). Violation of expectation (VOE) research is a method of investigation studying an infant's knowledge of the world. The idea is that if children understand how the physical world operates then they will expect certain things to happen in given situations. VOE research is a technique based on the idea that an infant will show surprise when witnessing an impossible event. If children show surprise in given situations it means they have an intact knowledge of the world, as the expected behaviour did not occur. Baillargeon suggested that young infants had a better understanding of the world than Piaget believed. She investigated violation of expectation by testing how long it took for children to look at novel objects or people. For example, **Baillargeon & Graber (1987)** showed 24 babies, aged 5-6 months, a tall and a short rabbit passing behind a screen with a window. A baby with object permanence would understand that as the rabbits are passed behind the screen (hidden), they are still present. In this study there were two test conditions, an expected condition where the short rabbit cannot be seen behind the screen but is expected to come out the other side, and a second condition, which was unexpected where the tall rabbit could not be seen behind the screen in the window, as would be expected. They found that infants looked on average longer at an unexpected condition compared to an expected condition. In another study, **Baillargeon (1987)** habituated (show until interest is lost) 3-month-old infants to a truck rolling down a track and behind a screen. A box was introduced and placed either beside the track where the truck would roll past it or on the track where it should block the truck's path. The screen was then replaced and the truck sent down the track as before. Baillargeon found again that the infants looked significantly longer at this impossible event. Baillargeon's studies indicate that three-month-old infants have an understanding of objects that Piaget says do not appear until nine to twelve months. However, **Schoner and Thelen (2004)** argue that infants might look longer at impossible events simply because they are visually more interesting or involve more movement, rather than because a physical rule was broken. Nevertheless, **Bower et al (1971)** support Baillargeon's research by demonstrating that four-month-old infants will move their gaze towards an expected event. They showed children a moving train which became temporarily hidden behind a screen before reemerging on the other side. The children were able to understand that the train was out of sight but would be expected to reappear. **Bower (1974)** argued that visual tracking studies reveal that 5-month-old infants can represent objects in space, something Piaget attributes to far older infants. However, there are some limitations to the use of controlled experiments with children, in that they

may not represent real life and can lack ecological validity. Under controlled conditions there is a reliance on researchers making inferences from the children, especially given they are so young and cannot vocalise their thoughts. All these studies assume that factors within the environment are responsible for cognitive ability when biological evidence suggests this may not be the case. In later research, **Baillargeon et al (2012)** proposed a theory of infant physical reasoning, suggesting we are born with a physical reasoning system (PRS), which is our basic understanding about the world around us. This innate system provides basic principles such as persistence (objects exist in time and space) and solidity (objects cannot pass through each other), which allow infants to learn more complex details quickly through experience. This supports the core knowledge theory which suggests that infants are born with innate, cognitive abilities such as object representation which form the foundation for understanding the world around us. This is supported by **Hespos & Van Marle (2012)** who claim that Baillargeon's ideas help us to explain our universal understanding of the physical world. They argue that the universal understanding of the physical world is innate, as we all have a good basic understanding of the physical world regardless of culture or experience. This wealth of research has helped our understanding of how cognitive abilities are developed in infancy and early childhood.

