

The Looking Chamber Experiment, Robert Fantz, 1961

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The Looking Chamber Experiment refers to a series of studies performed by Robert Fantz in 1961. Before the work of Fantz, little research was conducted on infant perception. There was presupposition that infants held the ability to perceive light, color and movement, yet, lacked the ability to respond to complex stimulus (i.e. shape, pattern, size, or solidity). Fantz and his colleagues were specifically interested in finding the degree in which babies can perceive form to categorize their current environment. They created their research techniques on past observational studies with chicks and chimpanzees. To look at the visual abilities of infants, researchers followed eye activity to examine the way infants recognize different forms and their preference, if any.

In the first experiment 30 infants were tested at weekly intervals. The infants, aged one to 15 weeks, were presented with four pairs of test patterns at random. The following patterns were revealed in declining order of intricacy: horizontal stripes, bulls-eye design, a checkerboard, two sizes of plain square, a cross, a circle and two identical triangles. Fantz placed infants in a “looking chamber” where the infant would be able to see two displays at a time, on the ceiling, above their heads. Researchers would observe the infants through a peep hole to see if an infant was fixating on one of the displays. By observing the reflection in the infants’ eyes, researchers were able to observe and record how long the infant engaged with each display.

The time spent looking at the different forms presented was highly variable. Moreover, Fantz and colleagues discovered there was a strong preference for certain forms. Infants

displayed a fondness towards the more complex drawing pairs, specifically the bulls-eye and checkerboard. The remaining forms did not attract a differential interest or attention from the infants. These results were found true of all ages tested, inferring the results are not due to a learned behavior. Nevertheless, researchers found that as a result of exposure or maturation, infants began to shift in preference between the stripes and the bulls-eye at two months of age.

With data supporting the notion that infants have a visual preference, researchers set out to measure the alteration in visual acuity. In this amended version of the experiment, infants placed in the looking chamber were presented with a series of patterns composed of black and white stripes, in decreasing width, on squares of equal brightness. Investigators found that the ability to distinguish the width of the finest stripes decreased with increasing age. In follow-up studies infants were tested with face-like shapes/forms. Results found that across all age levels infants prefer an organized looking face in comparison to face-like shapes that hold scrambled features. This also led to the discovery that infants fixate on facial stimuli over simple shapes/objects.

The assessment of perception and cognition shows a bias between stimuli, indicating infants are not responding randomly. Fantz established the basic foundation on infant perception research, paving the way for future research in early development. His research was also innovative due to his methodologies. His preferential looking methods gave scientist a way to observe and measure interactions with presented stimulus. This observational method is now widely used in observational studies.

While Fantz's research may have been specifically on the perception of infants, his research set the stage for findings on prenatal learning. Recent study findings show that infants are born with an idea of what the human face looks like, suggesting prenatal learning. Not only

do infants prefer organized facial structures, as Fantz established, but they prefer attractive faces. Infants also have the ability to imitate different gestures such as mouth opening, sticking out their tongue. Moreover, Frances Horowitz built on the idea that infants, just like adults, will habituate to the presented stimuli over time. They found that measured observation times were contingent on the novelty of the stimuli. Interestingly, infants also showed effects of dishabituation by merely flipping the stimulus. Familiar stimulus showed lower engagements in comparison to novel stimulus. He influenced other notable experiments like Gibson and Walk's experiment of visual cliffs and Shurvarai, Albert, & Johnson's possible versus impossible experiments.

Further Reading:

Hock, R. R. (2015). *Forty studies that changed psychology: Explorations into the history of psychological research*. Harlow: Pearson Education Limited.

Fantz, R. L. (1961). *The origin of form perception*. San Francisco: W.H. Freeman.

Fantz, R. L. (1963). Pattern Vision in Newborn Infants. *Science*, 140(3564), 296-297.

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