

Television watching and shortened attention spans

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The idea that television viewing has led to shortened attention spans in children has been advanced for some time. Depictions of television as the idiot box, or boob tube, or of children as zombies in front of the television have popularized the notion that exposure to television inhibits children's ability to think.

Early Brain Development

The first two to three years of life are critical periods for the development of young children's brains. During this time, the connections between brain cells (neurons) form at a very rapid pace. These connections, or synapses, can be thought of as the wiring of the mind and form the basis for the processing of thoughts.

Recall all of the extraordinary milestones that infants progress through in those early years of life, from being entirely unable to speak or move to becoming freely mobile and understanding and producing language. All of these changes occur in the context of, and in response to, external stimulation. The logic behind infants being born with their brains being completely formed is poorly understood, but it makes sense that the fine tuning of the mind takes place in the context of the world the newborn will ultimately inhabit. It makes us maximally adaptive since human babies are born into different environments.

Studies conducted on newborn rat pups that have been exposed to different levels of visual stimulation early in their lives have revealed that there are structural changes, detectable under the microscope, that correspond to the amount of stimulation they received. In other words, rats (and by extension humans) have developed a flexible developmental functionality so that the same rat pup born into an environment where visual stimulation may be plentiful or where it is relatively lacking will be able to function.

Television and Attention

It has been noted for some time that television can be mesmerizing for young children and that even children with attention deficit disorder, who can pay attention to little else for meaningful periods of time, can stay focused on television. One of the central ways that television succeeds in maintaining the attention of children is through the "orienting response." First described by Pavlov in 1927, the orienting response can be thought of as the "what's that" reflex. Simply put, it's our brains keen interest in something that is new or unexpected. One can readily imagine why this is (and more importantly was) critical to humans survival.

A new sound or sight could prove dangerous and the brain quickly developed to give that input instant attention until it could be reassured that it did not pose a risk. Television programs, either by design or default, exploit our orienting response. They constantly change scenes or images. Commercials frequently have disconnects between sound and audio so as to refocus our brain on their content. Purveyors of children's television programming are keenly aware of this reflex as well and frequently use rapid image change as a way of keeping children engaged in the screen for longer periods of time.

The concern that exposure to television, particularly during early brain development, led many in the early 70's to theorize that it might be harmful, that exposure to television might overstimulate

developing brains, laying a foundation for subsequent inattention when the "real world" was too slow paced and boring by comparison. This theoretical concern was bolstered by anecdotal reports of teachers who began decrying what they perceived as children's waning attention spans concurrent with the rise of children's programming in the early 1970's.

It was the contention of many educators that children began arriving at kindergarten expecting teachers to mimic television, that learning should be as dynamic, as visually and aurally stimulating, as television which of course is an insurmountable expectation for even the most experienced educators of young children to reach.

In our study, we looked at the amount of television that children viewed before age three and their ability to pay attention at age seven. When the children were one year old, their parents were asked how much television they watched on a typical day. They were asked that question again when their children were three years old. When the children were seven, their parents were asked a series of questions on how well their children were able to stay focused and how distractible or impulsive they were. These questions comprise some of the core symptoms of attention deficit hyperactivity disorder. However, it should be noted that we did not have the requisite information to diagnose the disorder. ADHD is a clinical diagnosis and requires structured input from both parents and teachers, information we lacked.

Based on the parents' responses to these questions, we identified children in the 10th percentile and labeled them (for our study purposes) as having "attentional problems." Our analysis showed that the more television children watched before the age of three, the more likely they were to have attentional problems at age seven. Specifically, for each additional hour of television they viewed, their likelihood of having attentional problems increased by 10%. Put another way, a child who watched two hours of television a day before age three would be 20% more likely to have attention problems at age seven compared to a child who watched none.

Unfortunately, our study was limited in two important ways. First, we did not know what programs children were actually watching. Accordingly, we had no way of determining if some shows are harmful and others are potentially helpful or at least benign. Second, we cannot be sure that the children who watched more television under age three did not already have attention problems. Although children that young are not normally diagnosed as having shortened attention spans (since they all basically do), it is possible that some were already destined to have attention problems at age seven.

In spite of these limitations, our study had some important implications for parents of young children. The American Academy of Pediatrics recommended in 2001 that children under the age of two years watch no television and that television viewing be limited to less than two hours per day in older children. That recommendation was made based on very limited evidence. Our study is the first to suggest that early exposure to television may in fact have adverse health consequences for children and that parents should exercise due caution.

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