



The Watchful Eye

Newsletter of the Sexualization of Girls Project

Montgomery County (MD) NOW



Mid-May, 2010

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This Is Our Brain in Adolescence

By Mary Bailey

The primary source

The chief source of sex education for many young males is pornography on the Internet, according to David Amsden in a 2003 *New York* magazine article. As one 20-year-old confided to him, during his initial sexual experience “my first thought as it was happening was, ‘Oh, this is pornography!’” Some young men cannot get aroused with real women, Amsden found, but have no trouble interacting with a pornographic site. Others cannot sleep with their girlfriends unless they behave like porn stars. It is “truly amazing,” a sex therapist told Amsden, the “things women feel obliged to do” without “bothering to please themselves.”

The story of Amsden’s 20-year-olds probably began much earlier in life, perhaps in their middle school years. It is human nature for young teens to be curious about sex. After all, the adolescent brain is wired to study adult behavior. That’s how we all grow up. But the problem is that today’s boys and girls are encountering “Internet sex” (shorthand here for social networks, video games, cable movies, pornography sites, and the like) and accepting it as something they should learn.

We have long suspected that sex as portrayed on the Internet is damaging people’s sexual behavior, but those who defend these forms of entertainment have always said, “prove it!” Although not explicitly studying the Internet, neuroscientists equipped with brain-scanning techniques are now discovering the ways it and its siblings are able to shape behavior, especially during adolescence. The following is one such explanation.

The exploding brain

Until recently, we did not know the brain continues to grow beyond childhood. In just the last decade or so, neuroscientists have learned there are two periods in life when the brain dramatically explodes with brain cells (neurons): early childhood -- and adolescence. It is knowledge of this second period of growth that has altered so much of what we thought we knew about the brain.

Neuroscientists now realize that our brain’s *prefrontal cortex*, which lies behind the forehead and temples, burgeons with development from the first hints of puberty until our mid-twenties and beyond. The significance of this finding cannot be overstated, for it means that our prefrontal

Please forward this monthly newsletter on the sexualization of girls to people and organizations you think will (or should) be concerned with this unprecedented, fast-growing assault on girls.

cortex---the regulator of attention span, impulse control, and judgment---is the youngest part of the brain and the last to mature.

During our tumultuous teenage years, we typically respond to emotional situations with “gut feelings” initiated by our brain’s ancient center of emotions, the *limbic system*, sometimes referred to as “the reptile brain.” But this is also the time when our prefrontal cortex begins its rapid development, sprouting numerous neurons that branch and connect to form pathways and networks. Some of these branchings get used and others do not, depending on our interests and experiences.

Then, as we move into our twenties, the branchings we don’t use start withering away and our prefrontal cortex begins to *shrink*---and which branchings are saved and which are discarded depend upon our personal experiences and choices. “Teens have the power to determine their own brain development,” says Jay Giedd, chief of the child brain-imaging unit at the National Institute of Mental Health, “whether they do art, or music, or sports, or video games.” Or, we might add, whether they do the “Internet.”

Do, or just imagine doing

So how does this work exactly? It turns out that our individual brains are capable of rewiring themselves based on our *movements*, on what we physically *do*. Scientists call this ability “plasticity.” Each area of the body has its own assigned region on the map of the brain’s outer layer, the cortex. But the boundaries of these regions are plastic and can expand, contract or encroach on a neighbor’s area – based on use. For example, the fingering hand of a violinist takes up more space on the cortex than the bowing hand. The trumpeter’s brain is zoned to brassy sounds and the violinist’s to the sounds of strings. And, these days, a large area is often devoted to the thumb of a video-game addict.

Not only do our brains re-map themselves based on what we *do*, but on what we *imagine doing*. Staying with our musical examples, the brain of a pianist who only imagines playing a tune registers the same degree of change as the brain of the pianist who actually plays the tune! That is, the plastic brain can re-wire itself based on movement, whether real or imagined. Whether real or *imagined*! Think of the significance of this for Amsden’s young pornography viewers.

Focus and repeat

But two steps are necessary for brain re-mapping to occur. First, the viewer must give rapt attention to the real or imagined movement. That causes the prefrontal cortex, the regulator of attention span, to damp down all other distractions until, as psychiatrist Jeffrey Schwartz of the UCLA School of Medicine puts it, “only one thought, one possible action, prevails over all the other possible ones competing for dominance in consciousness.”

The second prerequisite for changing the brain’s landscape is repetition. Repeated experiences become converted into long-term memory, says Nancy Andreasen, chair of psychiatry at the University of Iowa, especially “if they have more personal meanings, a high emotional loading, [and] a vivid sound or appearance” – all qualifications that Internet sex easily meets.

What happens on the Internet doesn’t stay on the Internet

Picture an adolescent boy who has given focused and repeated attention to Internet sex. Eventually these experiences start to crowd out other, perhaps more romantic choices he might have made, and his brain builds a sexual repertoire that may last him a lifetime if other factors do not intervene.

Girls too can be drawn into the Internet vortex, of course. As with their male counterparts, teen curiosity can lead them to imitate the sexual practices they see on the Internet. By and large, however, while young males may be learning self-centered gratification, young girls are more likely led to study how to attract and please boys. In the process, the sexuality of both is likely to be distorted and impaired. And that is a dreadful price to be paid by a generation that is coming of age with the “Internet.”

For a detailed description of brain plasticity as described in this article, read “The Mind and the Brain: Neuroplasticity and the Power of Mental Force” by Jeffrey M. Schwartz and Sharon Begley.