Hollywood, PlayStation and the Brain

Watching television, movies and playing video games improve neuroplasticity

Every thought, feeling and action you have and do change the activity and physical structure of the brain. The human brain never loses its ability to transform on the basis of experience and it takes very little time. Technology forces our brain to restructure and change to accommodate a world of multiple realities. Multi-media processing results in highly complex representations of sensory information. Today our society has highly sophisticated learning systems and has little tolerance for low level stimulation.

We learn very quickly from watching how it's done, our mirror neurons allow us to watch as if it is happening to us. Our brain processes visual information effortlessly and much faster than text or auditory information…like directions.

Is it possible to learn extremely sensitive material by watching a movie?

After the surprise attack on the United States to begin our involvement in WWI, the nation had to assemble and train millions of soldiers at warp speed, most without any technical background or military experience. Young men drafted with no skills had to learn highly sophisticated jobs. The successful training of millions of civilians for complex wartime duties and missions was the first time use of learning through film for sensitive skills that required accurate learning and perfect application. Military leaders in charge of training realized the importance of learning through film and actually denied Ronald Reagan from active duty, explaining his role as an actor in the training films was the critical in the war effort. Anytime we need to learn quickly and must be accurate, efficient with pin-point precision…learning it by watching a video is extremely effective.

Watching movies and playing video games changes our brain structures…and our behaviors.

The motivation to play and watch is intrinsic…this means learning any content by watching or playing a game becomes effortless. This is the easily the most powerful way to impact human behavior. The power of media lies in the fact that we learn from watching, we synchronize with others and mimic behavior (movements and speech). The most powerful factor for Hollywood and PlayStation (or any other gaming device) is the fact that its influence is silent and unidentified. Mirror neurons provide the means by which the audience feels what the characters feel and the intention. We live personally as if what we are watching is happening to us; audiences and gamers empathize with heros, villains, wins and losses!

Considering the power of this medium it’s time to harness its influence!

Hollywood film producers and commercial game designers show us how it is possible to present anything worthwhile by captivating the audience. There are so many areas we need to accelerate teaching so we can improve learning: training in the workplace, in schools, in homes. Using it to teach important material (in the business world, in schools, to our children) enhances our chances for learning important material. In the face of claims that so many in our society lack essential skills it’s better

practice to transition from traditional methods (old-style training and school methods that were not as engaging) to the medium the human brain processes the fastest. Integrating healthy behaviors and prosocial ideals using the medium is so promising.

"Neurocinematics" is a field of study that seeks to explain what happens in the brain while we are watching a movie; brainwaves entrain, the primary auditory cortex is active, along with the visual cortex, along with the limbic system (depending on how emotional the scene.[i]) This is optimistic for changing behavior. Hollywood, and PlayStation follow a template that entices the brain to pay attention, feel emotional and remember what happened…which changes our behavior and the structure of the brain.

Watching movies and playing games improves pain, decreases depression and helps with anxiety.

During movies we are engaged as if we really are experiencing it ourselves; our mirror neurons provide for lightening-speed learning because we learn it instantly by watching. Watching allows visuals, sounds, and experience as a frame of reference; that speeds communication, learning, allow a common bond or an experience we otherwise wouldn't have had. Watching a movie and playing games improves pain, decreases depression and helps with anxiety.

During movies we are engaged as if we really are experiencing it ourselves; our mirror neurons provide for lightening-speed learning because we learn it instantly by watching. Watching allows visuals, sounds, and experience as a frame of reference; that speeds communication, learning, allow a common bond or an experience we otherwise wouldn't have had. Watching a movie and playing video games draw in the audience by design they follow a brain-friendly template required to captivate the audience. In fact, we can be so drawn into a movie or video game that subjects reported a decrease in pain, other subjects reported improved depression symptoms and relieve anxiety[ii]. Watching a movie relieves unpleasant emotions and playing a video game can improve symptoms and even train the gamer to get out of a depression. In a New Zealand study, researchers instruct teen subjects to play the game SPARX, 44% recovered vs. 26% of those who did not play. The game (Smart, Positive, Active, Realistic, Xfactor) is a 3-D fantasy video game that teaches mental behavioral skills for battling depression.

Playing video games can alleviate depression…gamers learn everything…faster!

After playing video games researchers found an increase in plasticity of the brain, and increased learning times[iii]. The more we play, the more neural challenge, the more the brain grows neural connections. After only 30 minutes a day of playing Super Mario Bros 64, the subjects increased the gray matter in the right hippocampus (the area involved with storing new memories and also implicated in spatial reasoning). After 2 months of playing 30 minutes daily they found an increase in the prefrontal cortex and the cerebellum. Subjects had improved their spatial orientation, memory, strategic planning and improved their fine motor skills[iv]. In another study with older adults, aged 60 to 85 years old, researchers found playing NeuroRacer for 3 hours a day increased attention focusing, working memory and task switching[v]. The changes in the EEGs showed increased activity in the prefrontal cortex after one month!

- Playing video games ends age related decline in visual search, memory and spatial-reasoning (Dye, Green, Bavelier, 2009)
- Slows aging in those over 50 who play 2 hours a day. By 10 hours of practice, subjects showed significant improvement. After 5 to 7 weeks, the average subject had delayed 7 years of age-related decline. (University of Iowa, 2013)
- Stroke patients who play video games relearn to plan and execute a plan. Playing the game improves their attention, cognition and even improves motor skills (TelAviv University 2013)
- To learn the student must be enticed to try even if we think we can't or are afraid; second we must be willing to put lots of effort even if we have little motivation to do so. Finally, we must have some meaningful success after investing so much effort…movies, television and video games do just that! (Gee, 2007)

Playing video games, especially action games improves executive function and attention.

There are plenty of reasons playing fast-paced games and watching television have compromised our ability to pay attention for long periods of time. The message producers communicate move at light speed, and today, scene to only a few seconds to maintain the attention of the views. In the last few years, Sesame Street has changed its format from developing a story in 20 minutes to now limiting to under 5 minutes. A disturbing study on toddler's attention and watching Sponge Bob Square Pants found children 4 years old lost their attention span after watching the 2-3 second scenes.

But recent studies show playing certain games improves the gamers ability to focus on the task in the presence of significant distractions. These types of games require a top down attention and as a result increase their ability to select relevant information and to suppress distractibility, in both adults and in children ages 7 to 17 years[vi]. The practice of switching attention from task to task allows them to improve task switching which improves performance and the cost of switching from one project to another. These gamers are trained by their constantly changing environment where they evaluate and reevaluate the task at hand, this behavior requires cognitive flexibility and actually improves the ability to switch tasks and be more effective. Television does not, it decreases the ability to switch tasks, multi-task effectively[vii].

Some of our most precious skills can be improved with game training. After only 6 weeks of training, strategic reasoning transferred to every day problem-solving. Brain Fitness, Space Forress and Rise of Nations increased white matter, improved connectivity, decreased distraction and increased working memory[viii].

- "Action gamers" pay attention to time limits and significant objects in their visual attention despite distracting information (Krisman, Kang, Sperling, 2012)
- Action gameing trains the attention to switch tasks quickly, and builds cognitive flexibility (Cardoso-Leite & Bavelier, 2014)