Nicolina Cavazza
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3D Stereoscopic Television: The Innovation for Tomorrow

Nicolina Cavazza

Introduction

Throughout time the television has been part of every day for over 50 years, but how far has television really gone in advancement? Stereoscopic television creates a whole new television experience to viewers by making picture realistic or what most people know it to be called as "3-Dimensional." Little do we know about the benefits and disadvantages of this new technology. My paper will address the background behind the development, the legal, social and ethical issues, along with the security perspectives and further research need to be done to enhance performance. Make the picture come alive in your own home, live life's dream on the edge of your couch --- with 3D projection.

Background

Although stereoscopic television was technically produced to the public in 2010, the product has been thought of in previous history. The actual groundwork for stereoscopic television began in the 1980s – 1990s by three major televising companies: StereoGraphics, Tektronix, and VRex (Mendiburu, p. xiii). In 1920, John Logie Baird, created a "stereovision" receiver that transmitted people and objects in natural colors. Through ordinary daylight and the prism, Baird became aware that UV radiation provides a 3D image (Tiltman, 1928). But because technology didn't have the proper advances and parts for this type of television it could not possibly be initiated on. Not to be mistaken for a halt in television advancement, the next decade was booming. By the start of 1993, close to 98% of U.S. households owned at least one television (High-Tech Production, n.d.). In 2000, after years of speculation and improvement the DVD was released to the public replacing VCR (High-Tech Production, n.d.). In 2005, almost all televisions were flat LCD and plasma screens, making television thinner, clearer and faster. Along with

the movement to the flat screen came HDTV, which is high definition television that creates better visuals, sound and image quality (High-Tech Production, n.d.). Leading the economy a little bit closer to stereoscopic television. And finally in 2010, 3D movies and television sets hit the market. So why did it take almost a decade? What is the process behind it all?

3D Television not only affects the United States, it affects the world around us. The protocol used to transmission this motive is a high-powered NTSC protocol with limited bandwidth, leaving moviemakers no choice but to find another way (Mendiburu, p. xv). In September 2010, the release of the Fuji W1, a 3D still camera became the first step into this movement (Mendiburu, p. 4). In January 2010, camera settings began to be established through image monitoring and alignment. As Steve Schklair, Founder and CEO of 3ality Digital Systems, stated "there has to be a path to create content on a realistic level or else there is no use for 3D (Mendiburu, p. 164)." And after much research, on October 7, 2010 Toshiba released the first ever-3D Television. As Mail Online states, "Toshiba uses a 'perpendicular lenticular sheet,' a small lenses that directs light from the display to nine points in front of the TV. If a viewer is sitting within the viewing zone, the brain integrates these points into a single 3D image ("Daily Mail Reporter", 2010)." But Toshiba wasn't the only televised system searching for new ways. Christopher Fehn, Klausd Hopf, and Birgit Quante concluded "3D TV consist of five building blocks: a 3D content creation, 3D video coding, transmission, virtual view synthesis and 3D display (A New Approach on 3D-TV, para. 2)." As well as the SONY company, who in January of 2011, in an article by PC World stated: "the releasing of 22 "Smart TVs" in the next year (equipped with 3D usage with glasses, Skype and POV

services, as well as standard Internet streaming sites like Netflix) (Miller, 2011)." The 3D TV Box is another recent development in 3D TV without glasses. The Hungarian company iPont created this TV box, which works by taking a standard 3D image and transmitting it to the box to be displayed. IPont states "The 3D TV Box takes the image and projects it on to the TV display at the same depth you see when using 3D glasses on most 3D sets, and can take content from Internet, satellite, cable or any other services that currently offer streaming 3D content solutions ("3D TV Without Glasses")." And the list may go on. Even though no television marketers have successfully completed the search for a "perfect" television, the movement is continuing by the year. 2012 could possibly be the year you may even have a 3D TV.

Potential Benefits

Although 3D television has not fully been released to the public, there are some found scientific benefits and many opinioned benefits. Note that benefits that are opinionated came from tested surveys of those who have used the equipment. Researchers have found there are health, marketing, job and economic benefits that can all be related to the selling of 3D TV.

The State University of New York College of Optometry, relate 3D video to public safety and use of 3D as a means to protect eye health. Finding that because of non-proper screening of televisions and non-treatment in early life, many human beings have equipped a vision problem leading to difficulties in reading and learning (Today3D: 3D TV Health Benefits, 2011). According to Today3D, "an estimated ten to 20% of people cannot see 3D and this can be a warning sign of eye disease (2011)." So if in home

televisions were 3D this can lead to knowing your children having an eye problem, ability to have it tested early, and better viewing for the eye because of in home 3D TV. Not only will it help discover problems in vision, it will also enhance vision, Virtual 3D gives the eyes a "sensation of depth," because it uses two identical imaging. 3D lets the eyes be in use in a unique way (Today3D: 3D TV Health Benefits, 2011). Showing that 3D technology could possibly improve health.

3D technology can also improve the economy and job availability. Manufacturers at CES publicized that 3D would not add significant cost to TV's only about $200-300 dollars. 3D TV's will also be more widely available and less expensive after alterations. The government will also add a flat panel to television prices (eternal treasures. n.d.). Another advantage to the marketing of television is the "real life" feeling you get while watching it, the images are clearer, wider color range and supports internet TV (eternal treasures. n.d.). Because there are a lot of steps into making three-dimensional movies, a lot of jobs can be added to the economy. If you are shooting, a single crew for a 3D movie works about 50 mins. on one part of one scene. Also, the amount of people increases on 3D set because of the amount of extra cameras used and still cameras (Mendiburu, p. 23-25). There can be a lot of benefits to 3D TV and most of all the job opportunities would tremendously help our economic status.

Legal and Ethical Issues

Although there are many benefits, there are also some risks. In April 2010, the health warning on 3D TV surfaced into more possibilities then expected. According to the Daily Mail in the UK, Pregnant women, the elderly, little children and those suffering from serious medical conditions are said to be at risk. The alert extends to those who

have been sleep deprived or drinking. It highlights side effects such as confusion, nausea, convulsions, altered vision, light-headedness, dizziness, and involuntary movements such as eye or muscle twitching and cramps (Poulter, n.d). Another leading manufacturer state that people should be avoiding placing 3D TVs near stairs, balconies or other areas where an accident could occur because viewers can become disorientated (Department of Justice and Attorney-General). 3D television can be dangerous to developing children as well. According to the Department of Justice, there's a "malaise" in children that can involved from 3D called strabismus or lazy eye. It is an abnormal alignment of the eyes in which the eyes do not focus on the same object (Department of Justice and Attorney-General). As it turns out, serious health risks are involved with children consuming 3D. The Department of Justice states even further, "If fully realized, 3D just might affect the vision of millions of children and, according to the latest research, many adults, across the country (Department of Justice and Attorney-General)." The amount of health risks exceeds the health benefits and could slow down the process of the TV being purchased.

Social Problems:

Not only are there health risks, there are social problems as well. While you can go out and purchase a 3D TV you would not find much to watch on it. There are not many 3D channels as have right now, as well as 3D movies; because of the cost it is to produce them. Lately half the 3D movies are movies recreated such as: The Lion King, Beauty and The Beast, etc. According to 3D TV Buy Guide, any early consumer is aware that when you purchase the first generation of a new technology you not only pay extra, you also get all the bugs inherent in something new. Technology will be assumed to be both improved and gets less expensive. Furthering their explanation saying that, there's

also the possibility that 3D TV won't "catch on" and though you'll still have a nice 2D television, you'll have paid extra for a feature you aren't using ("3D TV Problems, Issues and Concerns"). In order to get a quality 3D experience, the person has to wear 3D glasses in a certain position as well, meaning that you can't also watch 3D TV while relaxing. Another problem may be is the multitasking aspect; many of us do multiple things while watching TV like cooking dinner or doing homework that would be very hard with a 3D computer. Society would have to make the decision if they would want to purchase the device or not.

Security Concerns

With every new developed technology comes security concerns, and because a 3D television (depending upon its brand) may be required to connect to the Internet. The Internet is a whole worldwide connection to security concerns, but add that to the inside of your living room and it can be vital. According to John Leyden, Internet-connected TVs could be used for the following: hackers to infiltrate home networks, get personal records of the homeowners, connect to security software's, VoIP devices and TV network systems (Leyden, 2010).

Further Research

3D television is on the rise but is in need of many improvements. One of the biggest improvements that sparked my attention was the move to 4D. 3D wasn't even accomplished yet. 4D cinema would provide the audience with the most film going experience. The 4D experience would have in-built sensory panels that would output

vapors during to add to rainy scenes, or submit smells. Avril Foyles of analysts, says she believes 4D TV will be an even bigger selling point than 3D for the next generation of televisions: “3D is very immersive but 4DTV takes it to the next level. Imagine watching the Perfect Storm and really feeling the spray on your face or Toy Story 3 and being able to smell the strawberry scent on Lotso. I think it’s a game changer (“Sense 4D TV”).” It will be exciting to see what’s in the future.

Conclusion

3D television is the step to an innovated lifestyle. Television started out with only 2 channels, and now was at the point of 1,000 channels with real life interactions. As long as the public keeps in mind that there may be restrictions to the television, and improvement occurs, 3D television could possibly be the next leading technology.

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