



Virtual Reality Making A Comeback

Eliana Lowry for Professor Jose Baez-Franceschi, MFA, University of Houston





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Reference Sources

The *Visual Communications Journal* can be found on EBSCOHost databases.

ISSN: Print: 0507-1658 Web: 2155-2428

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Virtual Reality Making A Comeback

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Abstract

Twenty to thirty years ago, virtual reality was supposed to take the world by storm, but for some reason, consumers did not latch on to the new “technology of the future” and it disappeared. Virtual reality is becoming prominent in the technology industry again, and VR businesses need to make sure history does not repeat itself.

Consumers did not catch on to VR back in the 80's and 90's for multiple reasons including the technology not being advanced enough, the equipment being bulky, motion sickness, too expensive, and no practical uses for it. Based off a survey conducted with 50 participants, it appears that customers do not necessarily feel the same about virtual reality now, which makes VR regaining its popularity understandable. Consumers believe that virtual reality will stick around due to the fact that it can be used for more than entertainment. While many people still have not used a virtual reality product, they are eager to use one and can see themselves purchasing one in the near future. Virtual reality failed early on because it did not have the technological or consumer support it needed to be successful; however, VR has gained that support now and looks like it is here to stay.

Virtual Reality Making A Comeback

With release of technologies such as the Oculus Rift, HTC Vive, Sony PlayStation VR, and Microsoft HoloLens just to name a few, virtual reality¹ is quickly becoming the next big thing. What many people do not know is that this is not the first time virtual reality¹ has tried to revolutionize the technology world. Back in the 1980's and 1990's, VR² technology was being offered to the public and instead of thriving, it failed. If VR is trying to make a comeback again, it is important that the companies attempting to make it happen make sure that history does not repeat itself.

Virtual reality was all the talk in the 1980's and 1990's with VR style movies like *Tron*, *Lawnmower Man*, and the Virtuality video game company started by Jonathan Waldern. According to a *Wired* article written by Nicholas Negroponte, the founder of the MIT Media Lab³ in 1993, “I expect that within the next five years more than one in ten people will wear head-mounted computer displays while traveling in buses, trains, and planes...” Unfortunately, what people thought would be a huge success, turned out to be a huge flop. It can be argued that the reason why virtual reality could not take off back then was due to the lack of technology. While the same form

of technology, stereoscopic 3D⁶, was used in virtual reality products past and present, the specifications of the technology are higher and more impressive compared to the technology in the past.

Comparing a virtual reality product from the 90's such as Nintendo's Virtual Boy, and the popular VR product now, Oculus Rift, can show that the technology has vastly improved. The resolution of Virtual Boy was 384 x 224 pixels compared to the 2160 x 1200 pixel resolution of the Oculus Rift. Virtual Boy ran on a 128 KB RAM with no USB (Planet Virtual Boy, 2017). Whereas Oculus Rift has an 8 GB RAM (8 million KB) and has both USB and HDMI capabilities (Digital Trends, 2016). Other factors contributed to the decline of excitement in VR such as cyber sickness⁴ from playing the games, low quality equipment, and lastly that VR equipment did not meet the creative ideas of the consumer (Fezzik, 2013). Kill Screen, a video game arts journal, published an article where the author described the consumer disappointment as, "pop culture depicted VR as a glorious vision of the future, but the rudimentary technology had no way of realizing this. Virtuality made a simple mistake that plagues so many tech businesses: they tried to mask underwhelming performance with flashy gear" (Fowle, 2015). It is clear that virtual reality is trying to make a comeback now. So are companies taking what happened to virtual reality back in the 90's, and using that history to enhance their future products? Have the consumers decided to give virtual reality an opportunity to show what it is capable of contributing to the future of technology? It is important to assess what happened to virtual reality twenty to thirty years ago, why consumers did not latch onto the idea of virtual reality, and what is being done differently now.

Technology is becoming a huge part of everyday life. It has given us many opportunities that we would have never had without it. If virtual reality is created for purposes rather than just entertainment, so that it can be useful, then VR will be something extremely important that all people will start to rely on in the future. The main focus of VR back in the 80's and 90's and even some of the draw to it today, is the look and the creative possibilities. It doesn't matter how cool or snazzy the technology is; if people do not have a practical use for the technology, it will fail. With that being said, companies are already looking at this issue and trying to apply virtual reality to realistic purposes. According to

the Virtual Reality Society, virtual reality equipment is starting to be used for military training such as flight simulation, medic training, and virtual boot camp along with medical virtual reality training for people studying and working in that field (Virtual Reality Society). With virtual and augmented reality⁵ hitting all markets of job training, entertainment, social media, etc., VR/AR, or mixed reality, could be a massive success in the future. According to a study done by TechCrunch in 2015,

"AR/VR could hit \$150 billion revenue by 2020, with AR taking the lion's share around \$120 billion and VR at \$30 billion" (Merel, 2015).

VR ultimately was not successful in the past due to a handful of reasons such as the technology not being advanced enough, the equipment not being user friendly, consumers not wanting to spend that much money, no practicality for it in daily life besides for just entertainment, and people complaining of feeling motion sickness or headaches. While companies in the present are still creating virtual reality for the sake of entertainment, companies have realized the importance of making VR have more practical uses such as medical and military simulation, education, and rehabilitation. This, along with advanced technology, has opened the doors for virtual reality to be successful now. It is up to the consumer now to determine whether virtual reality will be just another fad or if it is here to stick.

Definition of Terms

¹ Virtual Reality-an artificial world created by a computer that allows a person to use special electronic equipment to interact with the made up world

² VR-Short for virtual reality

³ MIT Media Lab-A laboratory located at the Massachusetts Institute of Technology devoted to the research of technology, sciences, media, art and design

⁴ Cyber Sickness-A type of motion sickness experienced when using virtual or augmented reality devices

⁵ Augmented Reality-A type of technology that creates a computer-generated superimposed world and combines it with the user's view of the real world

⁶ Stereoscopic 3D-A technique for enhancing or creating an illusion of depth in an image by using binocular vision

Literature Review

Colonizing Virtual Reality Construction of the Discourse of Virtual Reality, 1984 – 1992 – Chris Chesher (1992)

This article follows the timeline of virtual reality, how it came about, and what is happening to it. The author's main point was that in order for virtual reality to be successful, it has to have the right computing and communications technologies to do so. Back in the 80's and 90's, this technology was not at its peak and therefore led to the bad and fuzzy graphics, large hardware, and extremely high costs. Due to the technology innovations that are happening today, virtual reality seems to be more in reach. Virtual reality is often paired with either extreme simulation for surgical training or for science fiction, but companies have been spending time trying to make it more attractive to the mainstream rather than just a small group of people. Due to it being a very new concept in the 1980's, excessive claims were made about virtual reality capabilities or the future that could occur because of it.

Virtual Reality in the 1990s: What Did We Learn? – Brenda K. Wiederhold (2000)

This is yet another article that tries to relieve the stigma that VR is only for gaming purposes and instead can really help a cause. Different graphs are shown in this article that prove how much of an impact virtual reality has had on psychological health treatment in the 90's. In just seven years, from 1993-1999, government funding for virtual reality increased by \$670,964 and private funding increased from \$0 to \$67,500. Programs such as the National Science Foundation and the National Institute of Mental Health have seen what virtual reality can do for patients and want to help make software easily accessible and more versatile in doing what it needs to do to help patients.

Today's VR – Martin Goebel, Michitaka Hirose, and Lawrence Rosenblum (2001)

Another thing that has helped virtual reality become more popular is how it is targeted towards average users and not just companies or wealthy people. In a study done by Goebel, Hirose, and Rosenblum (2001), hardware costs in 1990 compared to now are significantly less and do not limit virtual reality equipment to just companies and universities that can afford them.

Another shift noted in the study was how virtual reality technology is used. In the past, headsets and gloves were used to create a virtual experience; nowadays this is done by projection. An example of this is the use of virtual reality in the medical field. Goebel, Hirose, and Rosenblum (2001), suggest that it would be impractical for a doctor who is performing simulation to use a headset, and use of monitors with high-position tracking would be more feasible.

Virtual Reality in the Real World: A Personal Reflection on 12 Years of Human – Centered Endeavour: Robert J. Stone (2001)

This peer reviewed article points out that the push for what virtual reality can do for a customer has changed throughout the years and this is why VR might be more successful in the future. VR used to be something that was going to be the next big thing, the newest and best technology out there, etc. Due to it being unknown and the prices being pretty high, customers did not feel the need to partake in the fad. The author points out that it is important for people to think about what the end user requires from this product and this can be done by task analysis. The author argues that without a deep task analysis, customers are not able to assess what skills they are gaining from VR in the first place.

Virtual Reality: A Survival Guide for the Social Scientist- Jesse Fox, Dylan Arena, and Jeremy N. Bailenson (2009)

In Fox et al's (2009) article done on virtual reality and its role in social science, a study was done to see the trend in publications about VR over a period of time. It was found that articles written about the virtual reality object itself, its application, and its method had all increased greatly from 1994 to 2004. The largest portion of these articles centered on the medical field (33.5%). This is to be expected due to virtual reality being commonly implemented in the training of students. Technology has grown immensely in the past decade, and this helps virtual reality to become more prominent and have even more uses than it did a long time ago.

Motion Sickness, Virtual Reality and Postural Stability-Omar Ahmad Merhi (2009)

In a study done by Omar Merhi (2009), it was revealed that the postural stance of the individual is what contributes to motion sickness the most. After conducting

studies on subjects, Merhi saw that the use of head mount displays in virtual reality while standing contributed to more motion sickness than if one was using a head mount display while sitting. This is due to the amount that a person can move while standing versus while they are sitting. A lot of games and virtual reality simulations in the 1990's required full body participation and required the user to be standing in a designated area for it to work, thus feeling motion sickness due to standing and using the head mount display. Virtual reality now, is allowing users to use the head mount display, all from the comfort of their own couch. Because of this, the motion sickness issue of the past can be resolved for virtual reality use in the future.

Method

The method employed in this study was focused on gaining insight on what consumers think of virtual reality today and comparing the data with the research conducted about virtual reality's failure in the past. The first step was therefore to research and determine the most significant reasons for the failure of VR in the 80's and 90's and to use that information as a reference further on in the study. The next step was to create a ten questions survey with questions pertaining to consumers' thoughts of virtual reality, if they have tried it, what they liked and did not like about it, if they would be willing to spend money on a product, etc. The survey was distributed online through various social media platforms to obtain as much traffic as possible. Fifty people took the survey. Lastly, after their answers were recorded, the results were analyzed and compared to the research compiled about VR in the past decades to establish if consumer opinion has changed, to determine what bothered consumers in the past about virtual reality and whether that's still the case or not.

Results and Conclusion

The results were determined using two different methods. The first was to research and compare the various elements between the two different time spans in which VR has been popular. Many complaints from consumers who experienced virtual reality in the 80's and 90's were that it was too expensive, the technology and quality was underwhelming, it provided no use besides entertainment, and it made a lot of users feel motion

sickness. VR has taken many steps from where it originally was. For example, virtual reality headsets, games, and computers can now be purchased by consumers for anywhere from \$599 to \$2,000 (Ackerman, 2016). Making these products affordable and available to the general public makes the idea of virtual reality a lot more realistic, rather than just some futuristic thing someone can only touch at a store. Technology has come a long way in the past twenty years. The gear for VR earlier was extremely bulky, had low-resolution displays, and often did not show images in color but rather just red and white. 3D graphics were shown with oscillating mirrors, which caused eyestrain to the user (Charara, 2017). With VR headsets now, high resolution display has been implemented, tracking technology is used to help connect the player with the gear, and new gear has resorted to utilizing motion tracking to capture body movement versus in the past, where users had to wear a body suit or gloves to experience VR. The culture and use of virtual reality revolved around futuristic gaming, and was implemented in movies and arcade games all targeted to young kids who would enjoy playing something like that. Virtual reality today has become a lot more useful than just for providing entertainment. Some of these uses include simulation training for military, pilots, and medical professionals to help them learn and train for real life situations.

There were many interesting results from the survey that was conducted. Based on peoples' answers, 31% of consumers think that virtual reality is on the rise again because it can be useful in more situations rather than just gaming. This is closely followed by 27% of respondents indicating that the popularity of VR is due to advanced technology and visuals. 16% believe it is because companies are implementing VR into their business strategies, 15% believe it is because it is more affordable now, and 11% believe it is because it is more user friendly. 43% of people have used a VR product compared to 57% who have not, and surprisingly, 77% percent of people plan on purchasing a VR product in the future.

Consumers believe that VR's main purpose is for entertainment, followed by healthcare and military simulation, art, and education. These results helped confirm that unlike virtual reality products in the past, VR today has become more useful than just for providing entertainment. Some of these uses include simulation training for

military, pilots, and medical professionals to help them learn and train for real life situations.

Being able to use virtual reality for much more than just fun has put a value on VR. This technology is helping people learn and save lives.

Recommendations

In the future, surveying a larger pool of people will help get more defined results. Also, reaching out to large VR businesses such as Samsung, Sony, HTC, and Microsoft to see what VR purpose they put most of their effort towards promoting and how they try to attract clients will help understand the business side of virtual reality.

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